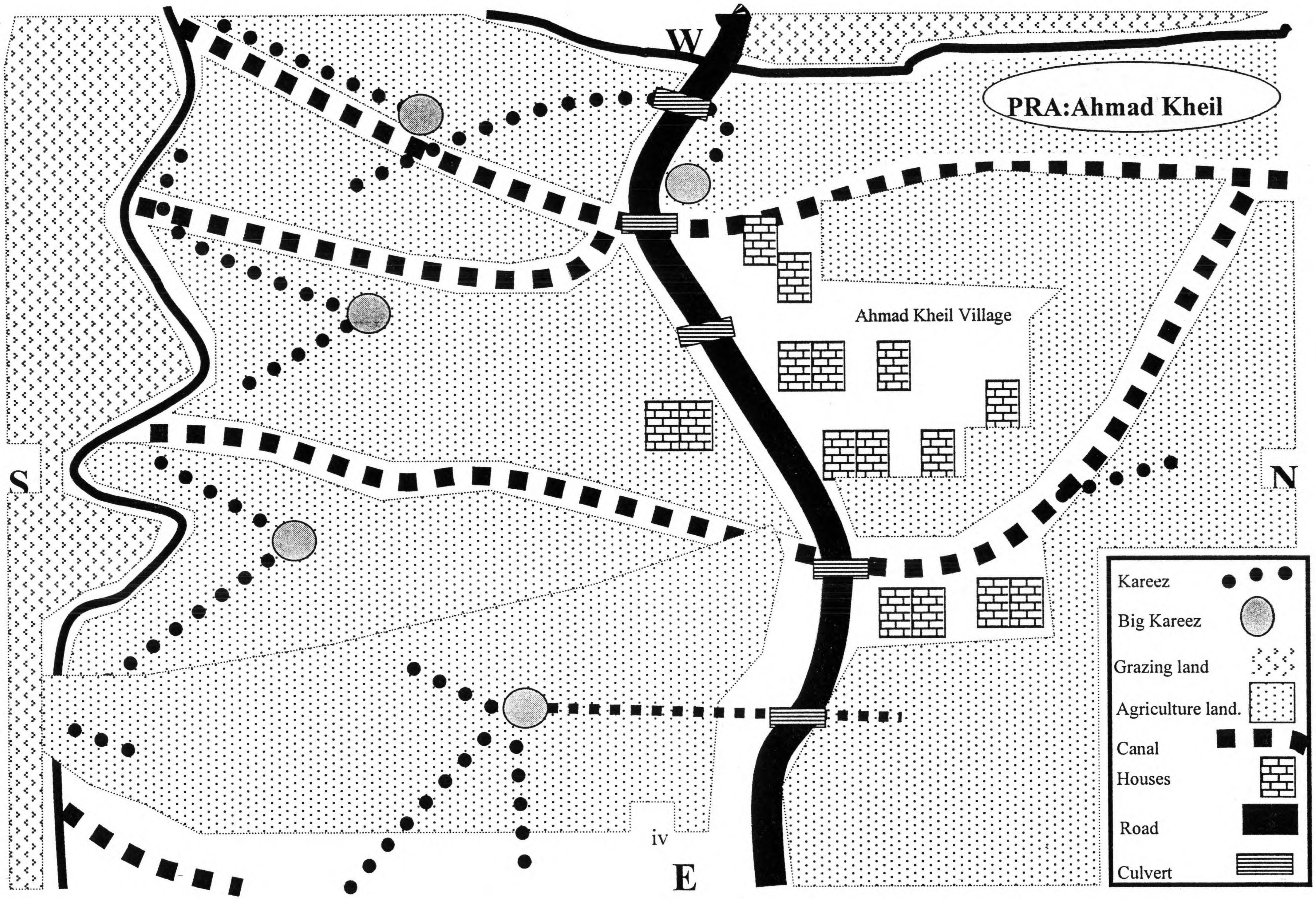
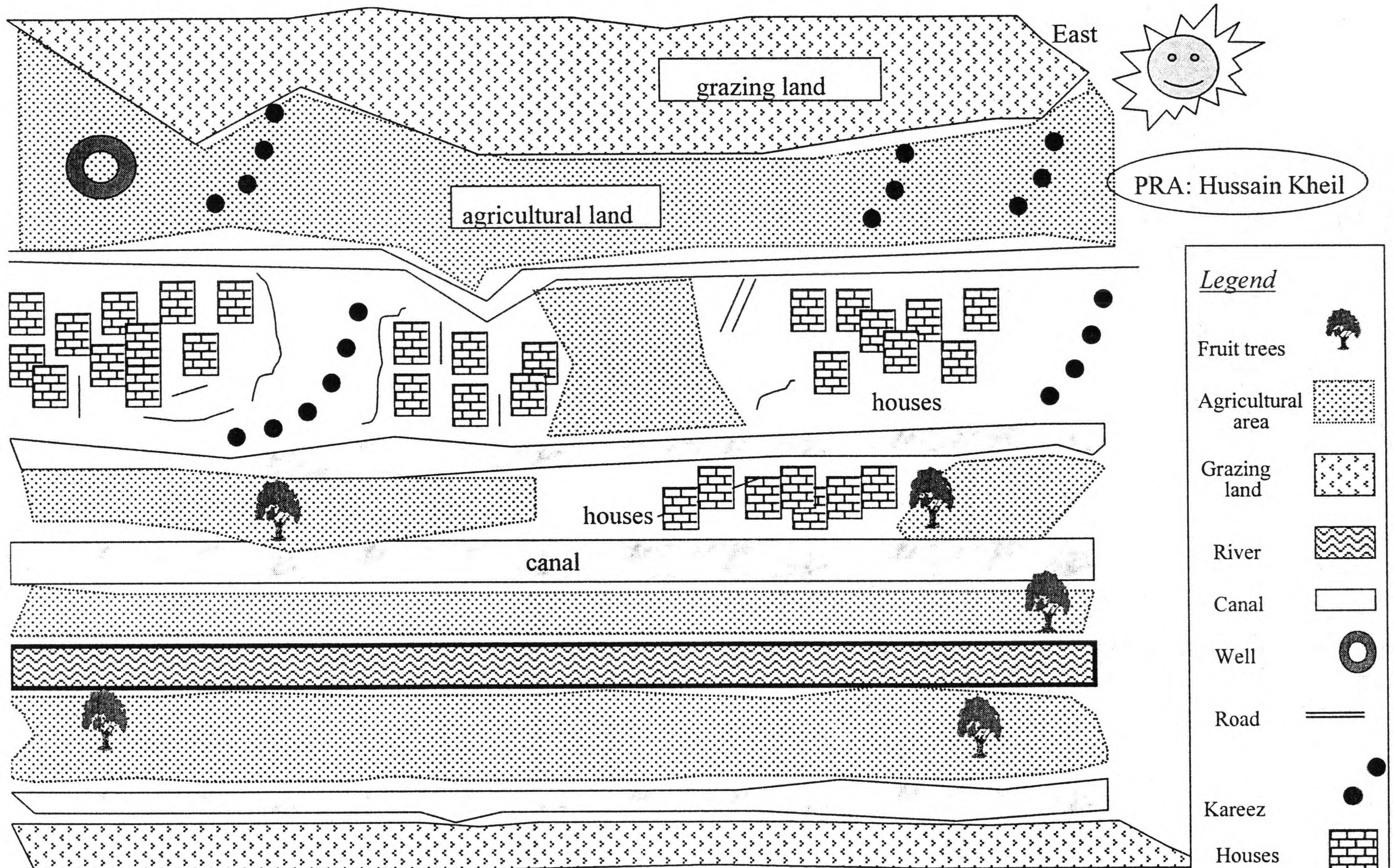
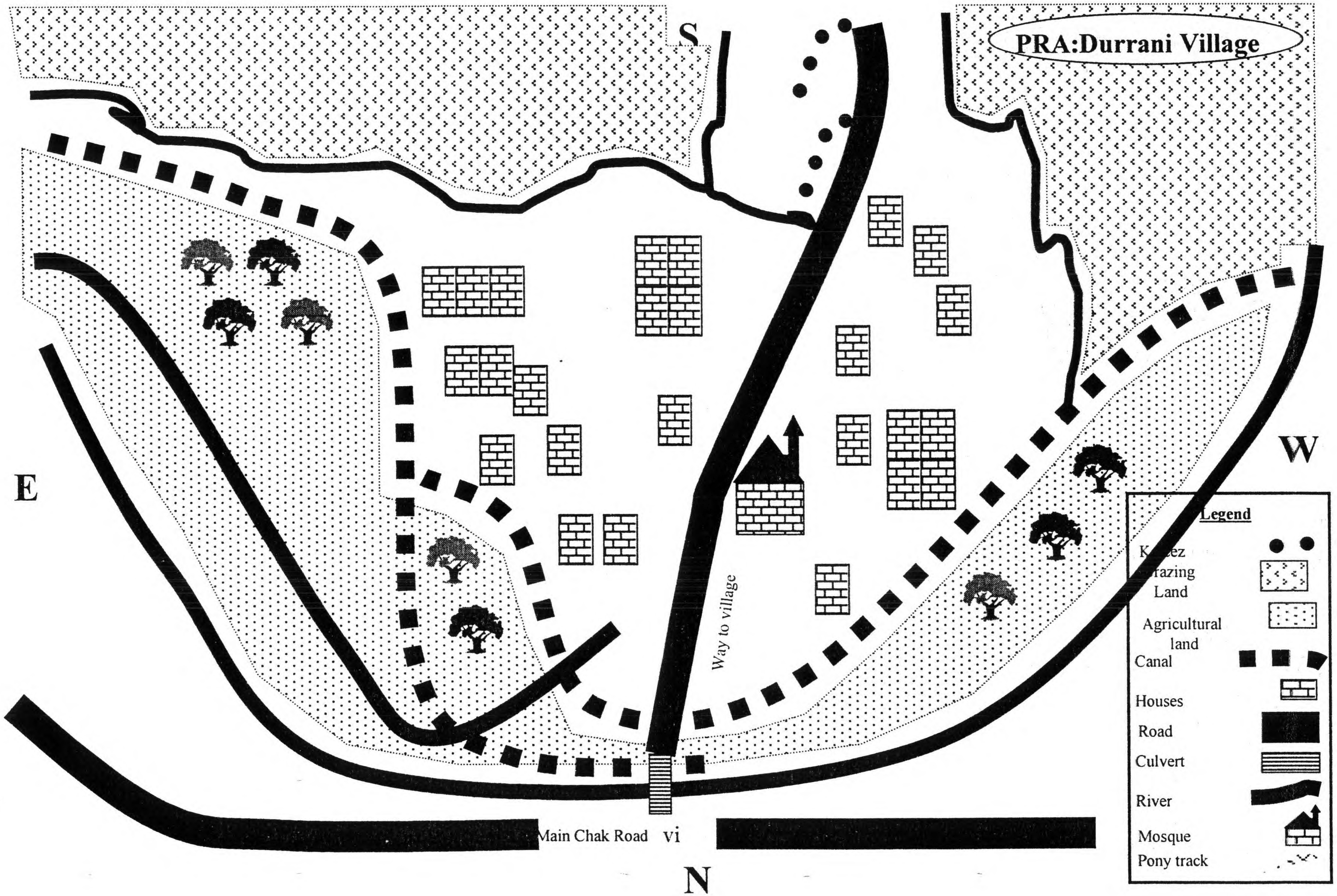
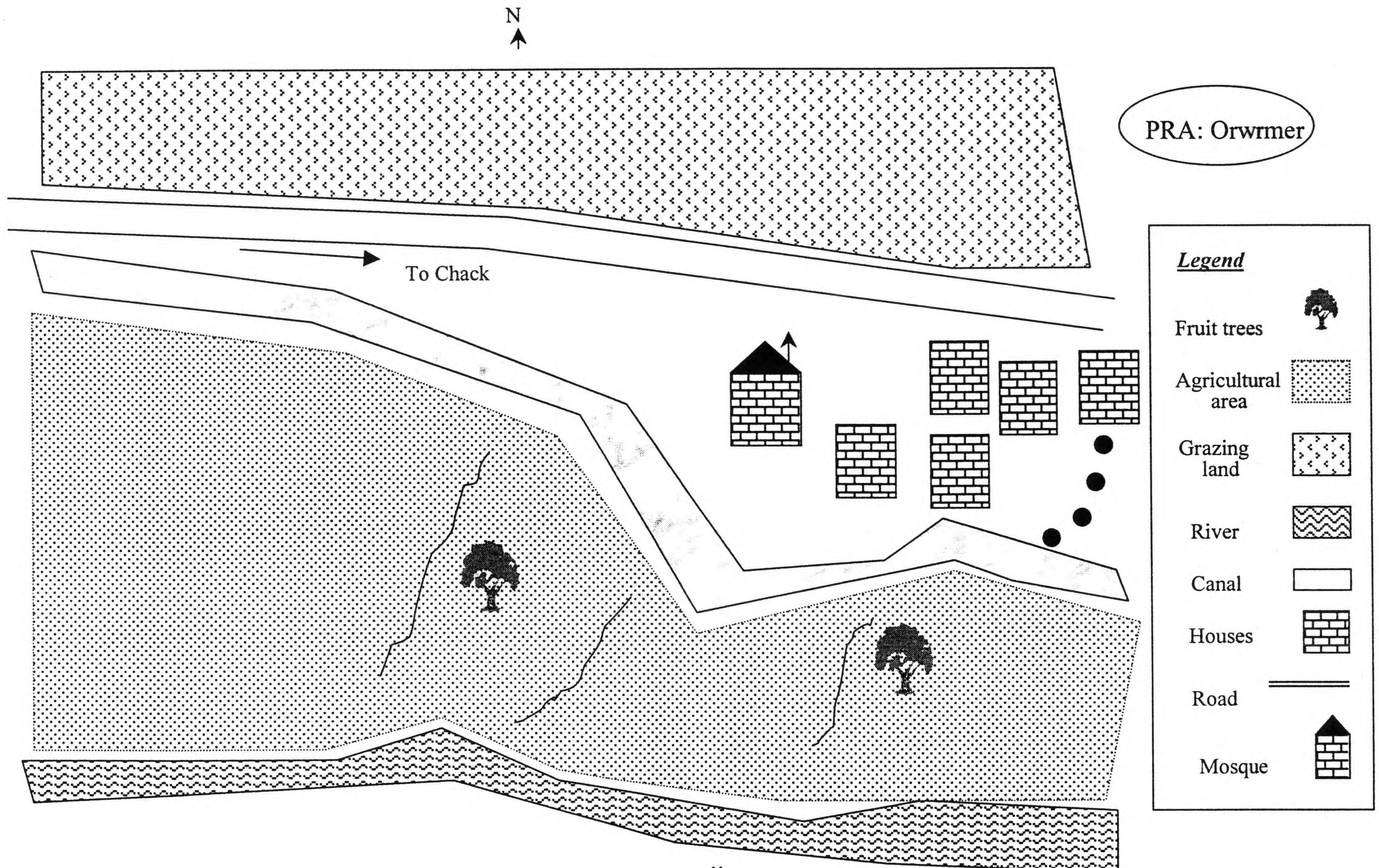
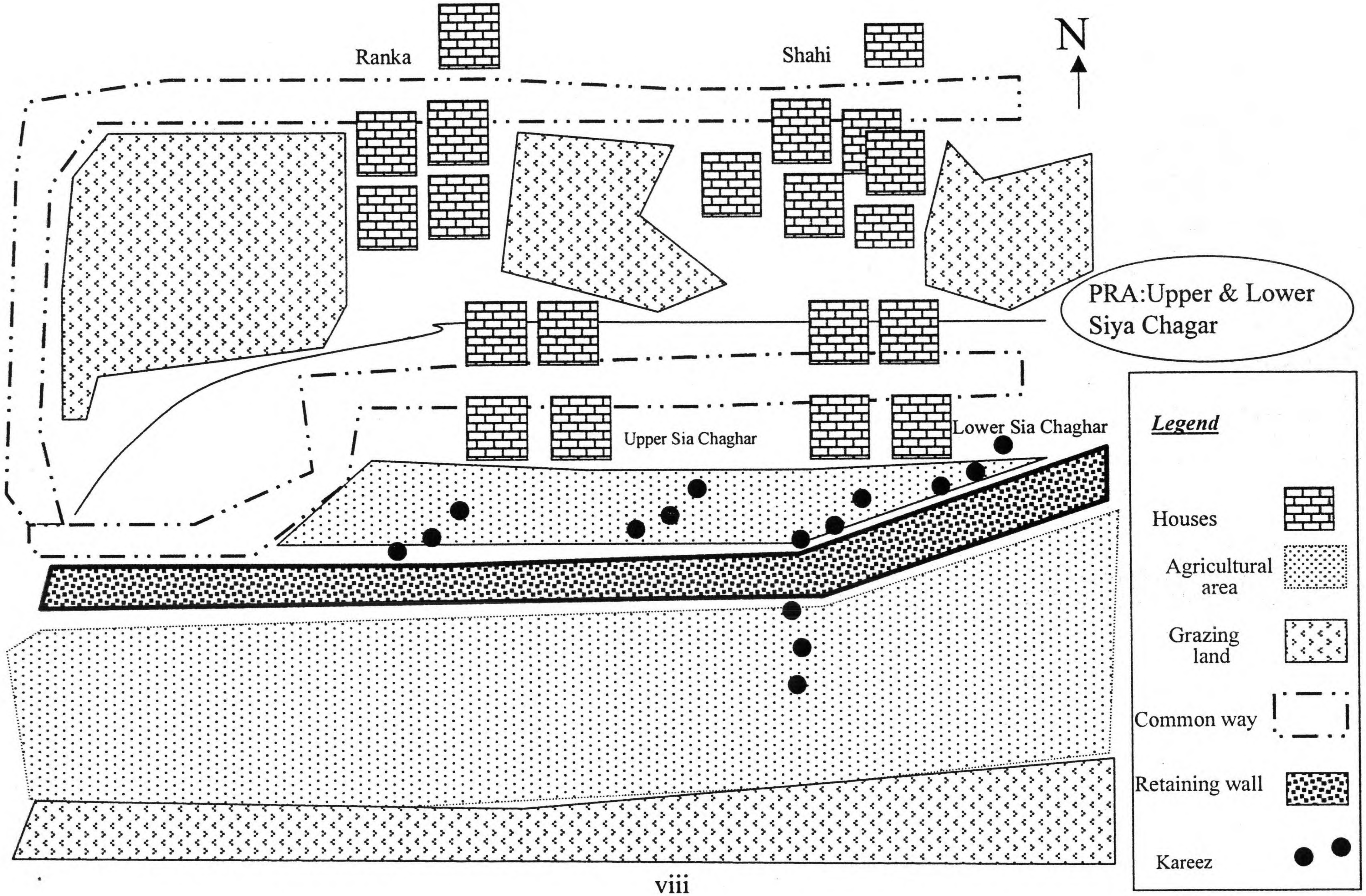
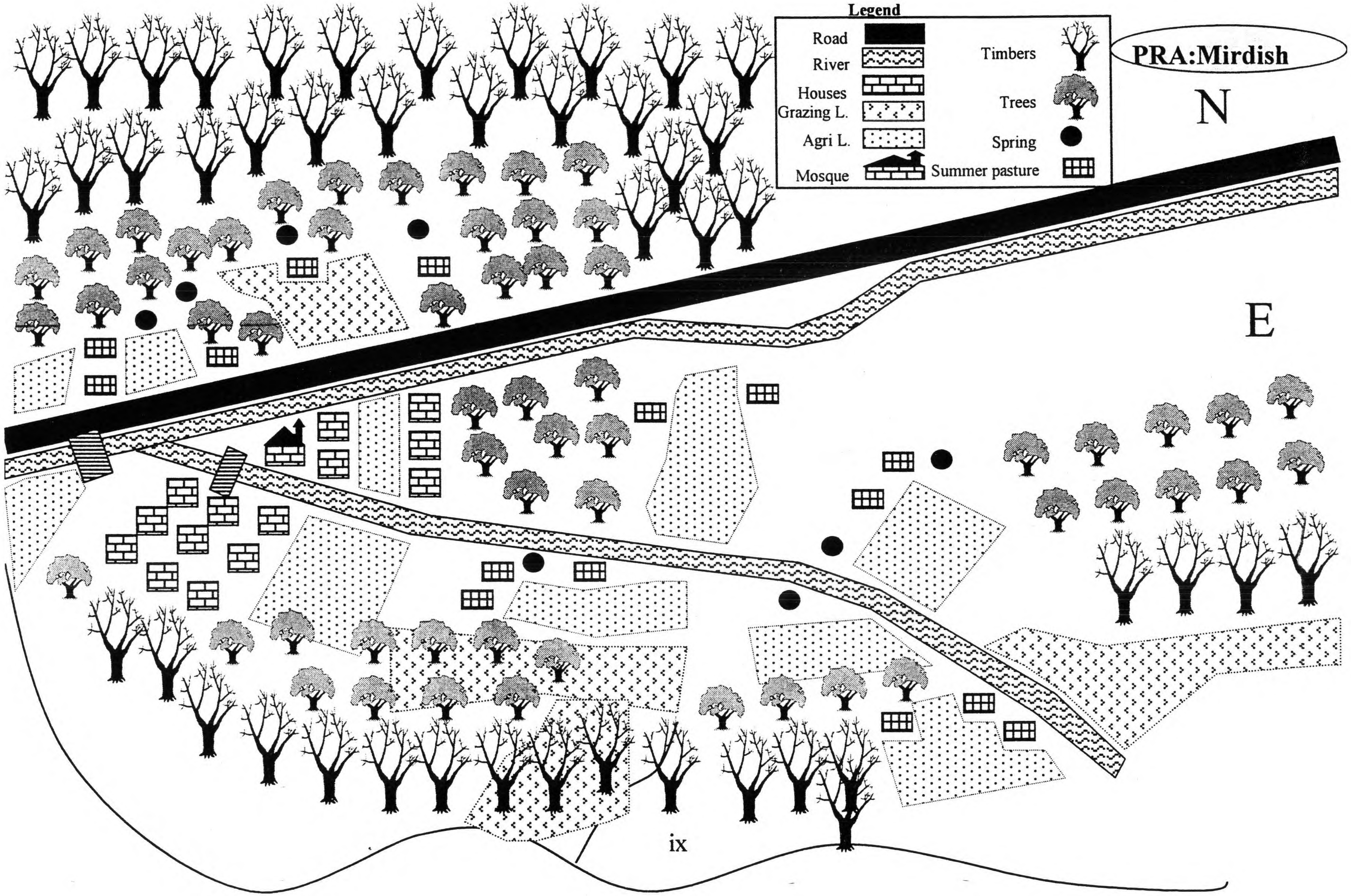

PRA:Ahmad Kheil
W
S
N
E
Ahmad Kheil Village
iv
Kareez
Big Kareez
Grazing land
Agriculture land.
Canal
Houses
Road
Culvert


East
PRA: Hussain Kheil
grazing land
agricultural land
houses
houses
canal
Legend
Fruit trees
Agricultural area
Grazing land
River
Canal
Well
Road
Kareez
Houses

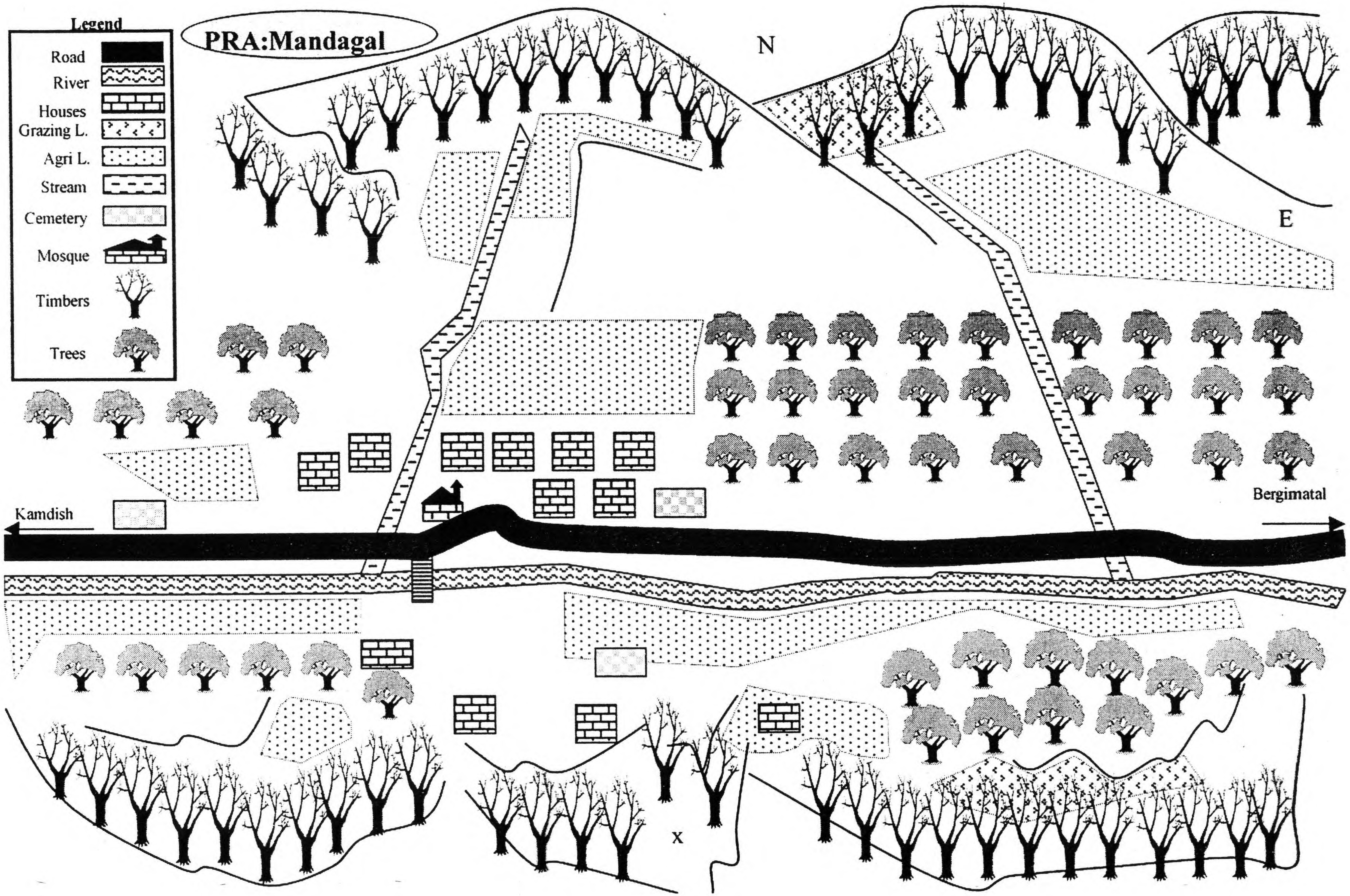

PRA:Durrani Village
S
E
W
N
Way to village
Main Chak Road
Legend
Land
Agricultural land
Canal
Houses
Road
Culvert
River
Mosque
Pony track


N
PRA: Orwrmer
To Chack
Legend
Fruit trees
Agricultural area
Grazing land
River
Canal
Houses
Road
Mosque

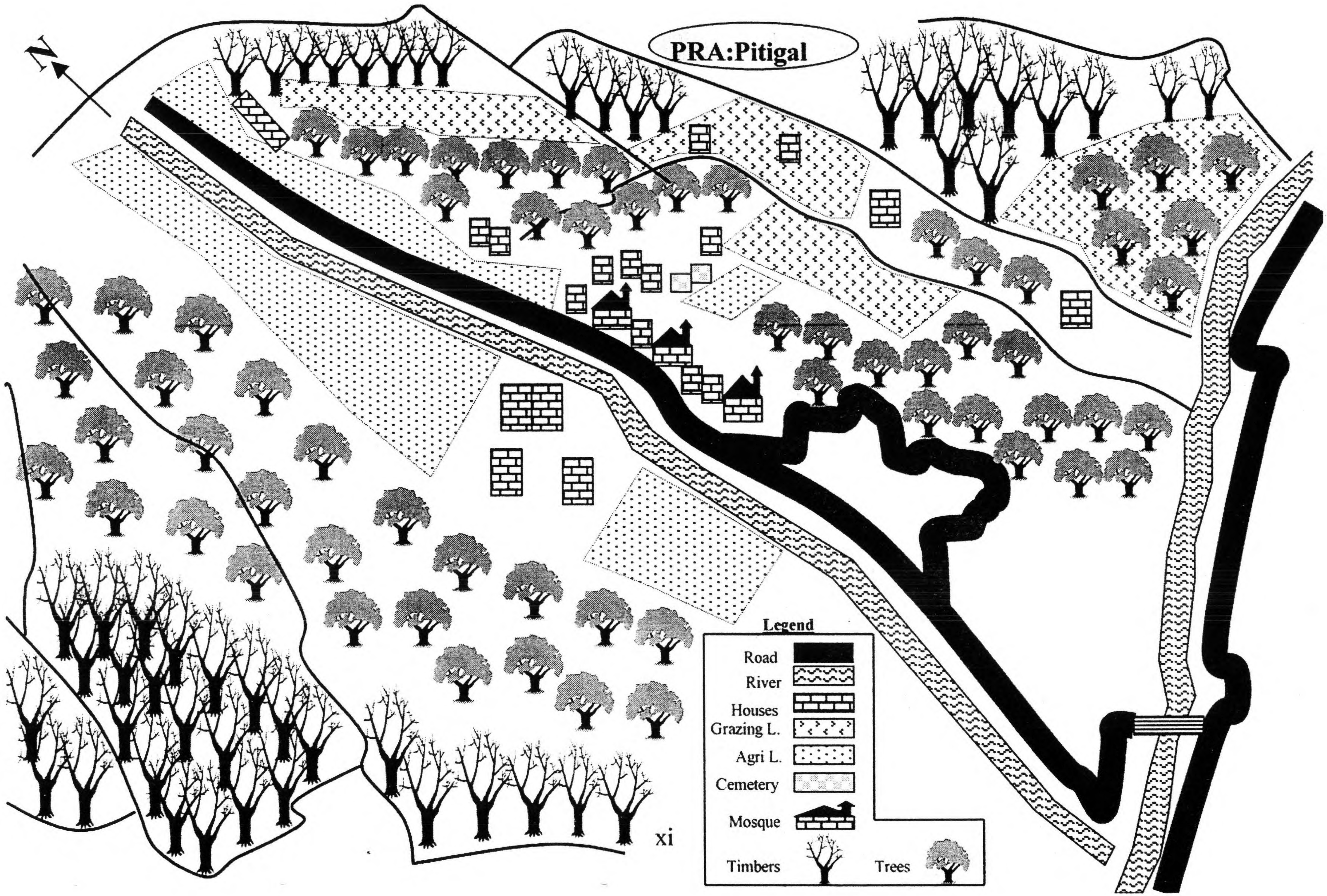

Ranka
Shahi
N
PRA:Upper & Lower Siya Chagar
Upper Sia Chaghar
Lower Sia Chaghar
Legend
Houses
Agricultural area
Grazing land
Common way
Retaining wall
Kareez



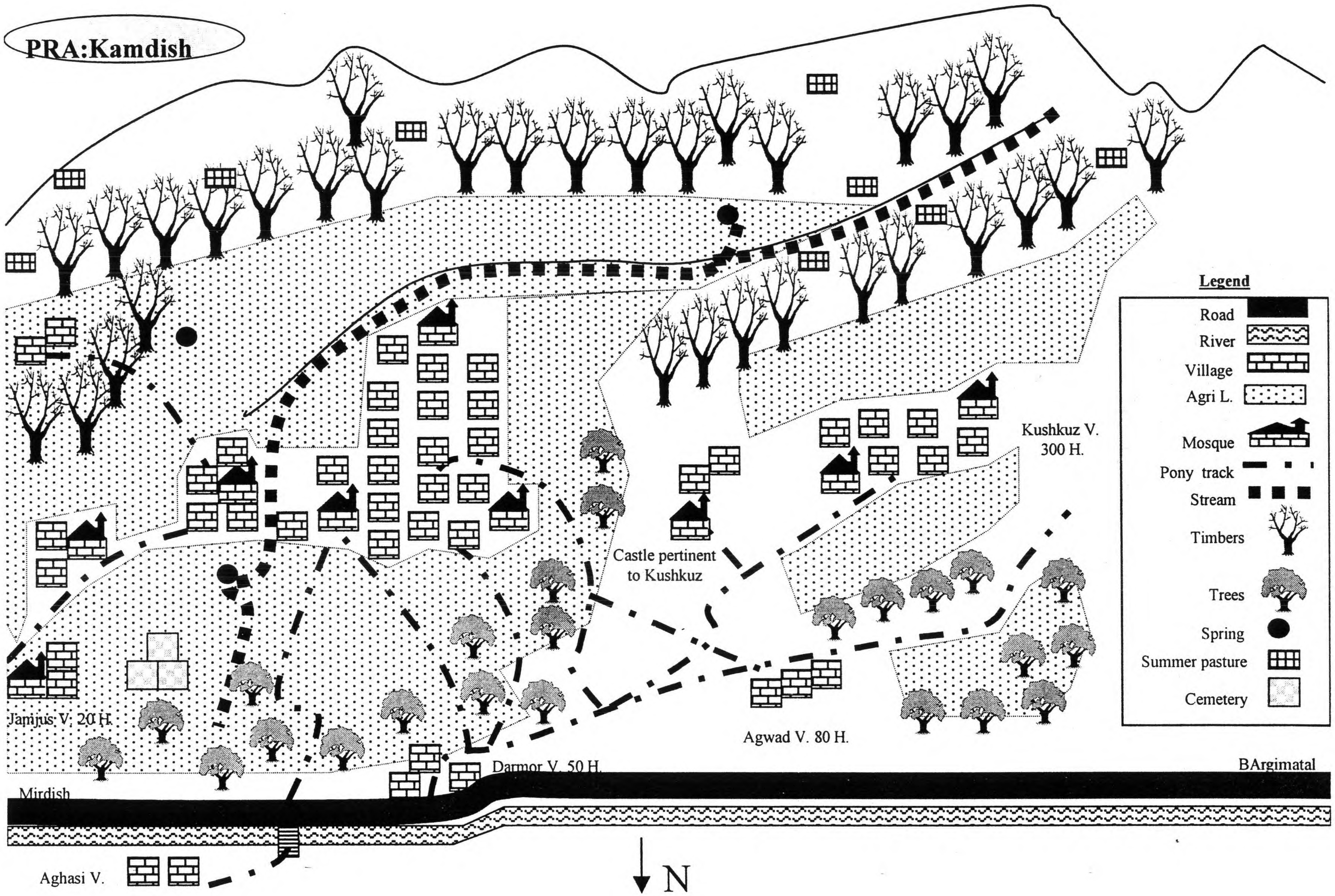
Legend
Road
River
Houses
Grazing L.
Agri L.
Mosque
Timbers
Trees
Spring
Summer pasture
PRA:Mirdish
N
E



Legend
Road
River
Houses
Grazing L.
Agri L.
Stream
Cemetery
Mosque
Timbers
Trees
PRA:Mandagal
N
E
Kamdish
Bergimatal
x



PRA:Pitigal
N
Legend
Road
River
Houses
Grazing L.
Agri L.
Cemetery
Mosque
Timbers
Trees


PRA:Kamdish
Legend
Road
River
Village
Agri L.
Mosque
Pony track
Stream
Timbers
Trees
Spring
Summer pasture
Cemetery
Kushkuz V.
300 H.
Castle pertinent
to Kushkuz
Jamjus V. 20 H.
Agwad V. 80 H.
Darmor V. 50 H.
BArgimatal
Mirdish
Aghasi V.
N

ANNEX II DISTANCE BETWEEN KEY PLACES

2.4. Sampling

Sample villages and households were selected using a stratified sampling method. Many factors have impinged upon the choice of this method, including the need to maximise representation. It is a two-stage sampling procedure, in which villages were selected based on availability of irrigation water and, then, on distance from the main road. Using the first criterion – irrigation water – villages were stratified into areas with "sufficient" and "insufficient" water, as defined by local informants. Within these two strata, villages were classified according to their distance (read not access) from the main road, i.e. villages close to the main road and villages far from the main road. Villages close to the average (<3km) and average-to-farthest (>3km) were classified as "near" and "far". "Small" villages were excluded from the sample frame and only "big" villages were considered. Finally, two villages were selected randomly from each sub-class, resulting in a total of 8 sample villages.

However, the timing, particularly in Wardak, was not conducive to implement the survey. It was implemented in the middle of the winter when main and secondary roads (village to main road) were closed. Some of the villages were, therefore, reached on foot. Because of this constraint the sample size was adjusted downward, from eight to five.

The survey in Kamdish was also constrained by the weather to some extent; it was spring time and rivers were full thus making travelling extremely hazardous. Moreover, since many of the villages were located high up on mountains, they could not be accessed by vehicle. This physical constraint has forced the team to reduce the number of sample villages from the planned five to four.

Having said this, the adjustment did not compromise with the "scientific" aspect of the survey. The team has avoided many of the pitfalls associated with "rural tourism". In spite of treacherous conditions the team has managed to sample sufficient number of representative villages - five from Chak (Ahmad Kheil, Bombi, Hussain Khan, Ginigar, and Zarkak), four from Dai-Mirdad (Siya Chagar, Khar, Durani and Owrmer) and also four from Kamdish (Pitigal, Mirdish, Mandagal, Kamdish) - located far apart from each other and at a reasonable distance from the main roads.

Distance Between Key Places

A) Wardak

Chak & Dai Mirdad	Time h.m	Distance/Km
Kabul - Maidan Shar	1.40	40
Maidan Shar - DashteeToop	1.20	28
Dashtee Toop - De Chak	1.10	23
De Chak - Hussain Khan	0.45	13
Bombi - De Chak	0.15	3
Ahmad Kheil - Ginigar	0.40	11
Ginigar - Miran	3.15	51
Miran - Durani	0.40	11
Durani - Tangysida	0.35	12.5
Tangysida - Khar*	1.00	4
Khar - Siya Chagar*	1.00	5
Miran - Owrmar	1.00	5
Tangy Sida - Zarkak	0.30	18
Hussain Kheil	1.5	13

B) East Nuristan

Kamdish	Time h.m	Distance Km
Ormar Khamdish - Mandagal	2.00	8
Ormar Kamdish - Kamdish*	1.30	4
Ormar Kamdish - Pitigal	2.30	31
Ormar Kamdish - Mirdish	1.10	11
Jalalabad - Asadabad	4.00	99
Asadabad - Asmar	1.30	28
Asmar - Barikot	2.20	50
Barikot - Ormar Kamdish	4.00	38
Barikot - Arandu	0.20	15
Barikot - Chitral	8.00	90

* Not accessible by vehicle: time given for walking

ANNEX III QUESTIONNAIRES AND CHECKLISTS

BASELINE DATA AT COMMUNITY LEVEL

Date ____

District ____

Village ____

	Activities	NGO
NGO activities	________________	________________
	________________	________________
	________________	________________
	________________	________________

Market Accessibility

1. No. of traders/shopkeepers operating in the community ________________
2. No. of transport vehicles in the village ____________________
3. Villagers owning and or operating transport animals ____________
4. Distance to the nearest market: _________ (km);
5. Travel time to the nearest market: walking ____________(hrs.); by donkey/horse _____by vehicle ______
6. Months during which road to the market is closed because of snow ____________________
7. Transportation fare (Afs/Rs, specify)

   per seer (of load) __________ per passenger ____________
8. Main transportation problems to the nearest market (thick and rank)

   bad road _____no roads _____high fare ____ lack of vehicles _____ security _____
9. Villagers five main problems related to market and marketing activities (list and rank)

   1.__________________________ 2. __________________________

   3.__________________________ 4. __________________________

   5.__________________________

Irrigation Water

1. Land status (enter jeribs)

   total irrigated land ____________ irrigated land abandoned __________

   irrigated land presently with no water ____________ irrigated land with insufficient water

   irrigated land with sufficient water ______________ rainfed land _______

   reasons for abandoning irrigated land (list) ______________________________

   ____

   ____

2. Irrigation source and status

name irrigation source	length (km)	No. of hrs required to irrigate one jerib land: present	5 yrs ago
a) canals (river source)			
________________	______	______	______
________________	______	______	______
________________	______	______	______
________________	______	______	______
b) karezes			
________________	______	______	______
________________	______	______	______
________________	______	______	______
________________	______	______	______
c) springs			
________________	______	______	______
________________	______	______	______
________________	______	______	______
________________	______	______	______
d) wells			
________________	______	______	______
________________	______	______	______
________________	______	______	______

Status of flood protection

1. existing structures

Enter name	Number	Material used	Existing status Normal	Damaged
Protection wall				
Retaining wall				
Dike				

2. new structures needed

Enter name	Number	Location in village	Wall protects		
			Jerib of land	No. of houses	No. of househol
Protection wall					
Retaining wall					
Dike					

Tree Plantation 1996 1997 Present

1. Roofing timber situation (give estimate)
   1.1. Total no. of trees planted ______ ______ ______
   1.2. Total number of timber produced in the village ______ ______ ______
2. Community problems related to roofing timber (list and rank)
   2.1. ______
   2.2. ______
   2.3. ______
   2.4. ______

Agricultural Production

1. What are the key on-going crop enterprises (list and rank)?

Crop	Rank	No. of households growing
Wheat	______	______
Rice	______	______
Maize	______	______
Barley	______	______
Potato	______	______
Fruit	______	______
Other vegetable	______	______

2.What are the main problems in obtaining improved seed, fertiliser and agro-chemicals for wheat production? (tick as appropriate)

	Wheat seed	Fertiliser	Agro-chemical
Supply shortage	______	______	______
Distribution problem	______	______	______
High prices	______	______	______
Other (specify)	______	______	______

3. Is poppy grown in this village? Yes ______ No ______ If yes,
   3.1. How many jeribs ______
   3.2. How many drug users are there in the village? Men ______ Women ______
   3.3. How many people need treatment/counselling? Men ______ Women ______
   3.4. For what purpose do people take drugs? Social ______ Tooth ache ______ Other illness ______ Food shortage ______
   3.5. Where do people grow poppy? On irrigated land ______ dry land______
4. Since when did people started to grow poppy? Before the war ______During the war______

Agrarian system

1. How many owner cultivators ___; sharecroppers ______; owner-cum-sharecroppers? ______ are there in this village?
2. How many large landowners (over 20 jeribs) are there in the village? ______
3. How many landless families are there in the village? ______

4. What is the tenancy arrangement in the village?

Input	Landlord contribution		Farmer contribution
	(indicate proportion)		(indicate proportion)
Land			
Fertiliser			
Seed			
Oxen/bullock			
Tractor			
Agro-chemical			
Labour cost			
Irrigation water			
Thresher			

Livelihood Security

1. What is the total number of families who have left the village during the war? _______
2. What is the total number of families still refugees elsewhere? ________
3. What is the total number of able-bodied (male) persons migrated in search of employment ___
4. When do people experience food deficit? Pre-harvest ________ three months after harvest __
   winter season ______ other period ______________________________________
5. What are the main reasons for the food deficit? Low harvest ________
   lack of roads and markets ___________ insecurity__________

Table 1. Rapid Village Appraisal Matrix: Group Interviews

Characteristics	*Village*	*Village*	*Village*
Population			
Households			
Ethnic group			
Languages			
No. migrated			
No. still refugee			
Major livelihood			
Distance from the district centre (km & hr on foot)			
Distance from the province centre (km & hr by car)			
List no. & type of skilled persons			
Social Infrastructure			
Roads (enter tertiary, secondary dirt/rocky; condition)			
Months roads closed and reasons			
Distance to nearest hospital (km)			
Distance to nearest clinic (km)			
No. of bridges needing repair			
No. of culverts to be constructed			
Structure of aqueduct			
Structure of intake			
Condition of canals			
Condition of karezes			
No. of vet. clinic			
No. of chemist shops			
No. of trained medical persons			
No. of TBA			
No. of functioning primary schools & students			
No. of functioning secondary schools &			

students			
No. of functioning girls schools & students			
Markets			
Main market & distance from village (km)			
No. of local bazaar & distance From village (hrs on foot)			
Major occupation			
Agriculture			
Major foodgrains			
Orchard products			
Vegetable			
Water source			
Irrigation water sources			
Drinking water sources			
Area irrigated (jeribs)			
Area rainfed (jeribs)			
Use of farm machinery			
Suppliers of farm tool			
Type of land tenure			
Livestock in village			
Handicraft items produced locally			
Export items			
Common human diseases in the village			
When was the last epidemic?			
What was it?			
Have children & women been immunised?			
By whom?			
Against what?			
Fuel sources			
No. of shops			
Administration set up			
Decision-making system			
No. of aid agencies			

Sectors engaged in			
Major problems of village			
Major problems related to crops			
Major problems related to livestock			

Natural Resource Management Checklist for Village

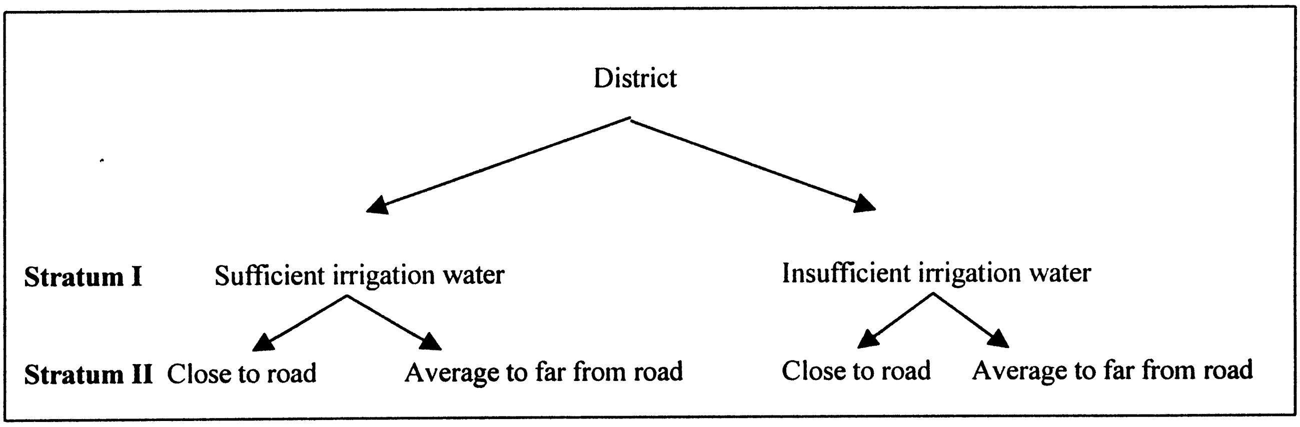
1. Common property
2. Rangeland
3. Forests

Table 2. Focus Group Participants Identity Form: ________________ Village

No	*Age*	*Shura*	*Mullah*	*Owner*	*Tenant*	*Renter*	*Irrigated*	*Rainfed*	*Read+ write*	*Full-time Farmer*
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

The timing of the survey was good in other aspects. The seasonal agricultural activities were completed, and many farmers have attended the group meetings. On average, the team has spent about 8 days in each district - a day in each village.

Figure 3. Stratified sampling for village selection



Following the sampling procedure described above, a minimum of 8 and a maximum of 12 household heads were selected from each community gathering and formal questionnaires were administered to them. In selecting the household heads, the procedure followed was first to list at least a third of the heads of households participating in the group discussion. Sample households were then located in the agrarian economy on the basis of the variable farm status. From each stratum - owner, owner-cum-sharecropper and sharecropper proper - a given number of households were randomly selected and interviewed. The team was able to interview 78 households from Chak and Dai-Mirdad, and 41 from Kamdish – an average nine households a day. Figure 2 shows the distribution of the sample households by tenure class.

Normally, women are engaged in many of the household decision-making. However, given the cultural restrictions, only male heads of the household had to be interviewed. Moreover, the interview was not conducted at the "door step" as this too would have been felt an intrusion to the privacy of the households. Interviewing was, therefore, done at the group meeting.

Table 3. District Matrix __________________________ *District*

No.	***Item***	***Data***	***Comment***
1	Distance from the province		
2	Geographical location		
3	Agro-ecological zone (FAO)		
4	Population		
5	Ethnic groups (list)		
6	Ethnic groups (% of each)		
7	Religious denominations		
8	Languages		
9	No. of "big" villages		
10	No. of "small" villages		
11	No. of functioning primary schools		
12	No. of functioning secondary schools		
13	No. of clinics		
14	No. of hospitals		
15	Status of road to district		
16	No. of transport vehicles		
17	No. of shops		
18	No. of mills		(wind, water, diesel)
19	Common human diseases (list)		
20	Common animal diseases (list)		
21	Timber production		
22	Handicrafts		
23	Fuel sources		
24	Existence of landmine		
25	Decision making system		
26	Poppy cultivation		
27	Major irrigation system		
28	Electricity		
29	Irrigated land		
30	Rainfed land		
31	Machinery		

BASELINE DATA AT HOUSEHOLD LEVEL

Household Specific

1. Respondent No. _________ Village __________________________ Date_______________
2. Household composition: male adults over14 yrs ___________; female over 14 yrs _______________
   children (boys + girls under 14 yrs) _______; total family size ________________________
3. Farm status: Owner ______sharecropper ________owner-cum-sharecropper __________renter _______

Area and Output (last column for renter and sharecropper only)

1. Area

	Irrigated (jeribs)	Rainfed (jeribs)	Amount given to landlord (seers)
Own area	____________	____________	____________
Rented	____________	____________	____________
Sharecropped	____________	____________	____________

2. Crops grown; output; and sale last season

	Area (jeribs)	Output (seers)	Sale (seers)	Given to landlord Crop (seers)	Given to landlord Cash (Afs)
Wheat	____________	____________	____________	____________	________
Rice	____________	____________	____________	____________	________
Maize	____________	____________	____________	____________	________
Barley	____________	____________	____________	____________	________
Potato	____________	____________	____________	____________	________
Vegetable	____________	____________	____________	____________	________
Clover/alfalfa	____________	____________	____________	____________	________
Fruit (all)	____________	____________	____________	____________	________

3. Place of sale

	Local bazaar	Landlord	Visiting trader	Other (specify)
Wheat	____________	____________	____________	____________
Rice	____________	____________	____________	____________
Maize	____________	____________	____________	____________
Potato	____________	____________	____________	____________
Vegetable	____________	____________	____________	____________
Fruit	____________	____________	____________	____________

Market accessibility

1. Frequency of travel to nearest market
   ______ times/day; _________ times/week; _______ times/month
2. Purpose of travelling to market
   To buy food _______ To sale livestock __________
   To buy clothing and medicines _____ To sale fruit & vegetable _________
   To sale crop ________ Other (specify) ______________________________
3. Mode of transporting surplus to the nearest market
   Donkey ____________ Labour ______ Flying coach________Other _____________
4. When do you normally sale your surplus?
   Immediately after harvest ______ three months after harvest ________ after a year _______________
5. Do you get good rate for your products if you sale locally? Yes _______ No _________
6. What limits you from taking your surplus to the nearest central market?
   Poor road condition ___________ lack of transport ___________ No time ___________
   Surplus too small _____________ Other _________________________ _________________

Credit

1. Did you borrow money last season? Yes _______ No _________
2. If yes, state sources, amount and purpose

source/tick	amount	purpose
Relative ____________	____________	______________________
Friend ____________	____________	______________________
Villagers ____________	____________	______________________
Shopkeeper ____________	____________	______________________

3. When did you borrow money? (state month) ______________________________
4. How do you intend to pay your debt (or have already paid)? (give valu/s as appropriate)
   In crop ____________ (seers) In cash ____________ (Afs) In labour ___________

5. How much in debt are you now? ______________(Afs/Rs)
6. How much of the loan you have borrowed is from the village? ____________________ (Afs/Rs)

Consumption and expenditure/month (kg)

	Wht	Rice	Gee	Meat	Tea	Sugar	Kerosene	Fuel wood	Clothing	Health	Social	Oth
Kg.												
Expenses (Afs)												

Source of Income and amount earned last season

	Amount (Afs/Rs)		Amount (Afs/Rs)
Sale of crop	____________	Sale of vegetable	____________
Sale of fruit	____________	Sale of firewood	____________
Wage labour	____________	Remittance	____________
Other source:		Sale of livestock	____________
________________________	____________		
________________________	____________		

Cropping Pattern and intensity of irrigation

	Area (jeribs)	Irrigated No. of times	Should have been irrigated No. of times
Crop			
Wheat	____________	____________	____________
Maize	____________	____________	____________
Rice	____________	____________	____________
Barley	____________	____________	____________
Beans	____________	____________	____________
Fodder crops			
Alfalfa	____________	____________	____________
Clover	____________	____________	____________
Vegetable			
Potato	____________	____________	____________
Onion	____________	____________	____________
Tomato	____________	____________	____________
Fruit			
Apples	____________	____________	____________
Grapes	____________	____________	____________
Apricot	____________	____________	____________

Cropping Pattern

1. Which crops did you grow last year on the same land
   After wheat_____________________________after rice______________________________
   After maize_____________________________after barley____________________________
   After summer vegetables__________________after potato____________________________
   With maize__________________after clover______________after alfalfa______________

Farm Input for wheat

	Area cropped (jeribs)	Seed applied (kg/jerib)	Seed variety name	Fertiliser (kg/jerib)	Irrigated (no. of times)	Yield (kg/jerib)
Local Variety	______	______	______	______	______	______
Improved Variety	______	______	______	______	______	______

Per Jerib Input Summary (major crops only)

Crop	Total Input (kg)			Total Input	Total output	Value
	DAP	Urea	Chemical + Insecticide	Price	per jerib	(Afs/Rs)
Wheat						
Maize						
Rice						
Barley						
Potato						
Fruit						

Farm power (enter as appropriate)

Farm power	***Owned***	***Rented***	***Rental cost/day/jerib****
Oxen			
Tractor			
Thresher			
Sprayer			

* specify which

Labour use by activity (for wheat/maize cropped last season)

Activity	***Family Labour (days)***		***Hired Labour (men)***	***Comment***
	Men	***Women***		
Land preparation				
Planting				
Weeding				
Watering				
Harvesting				
Threshing				
Bagging/storing				
Marketing				
Other:				

Agronomic Information

1. Which of the following factors limit wheat yield? (identify and then rank)

Weeds ______ Labour shortage _____ Lack of irrigation __________ Pests and diseases __________

Poor seed quality ___________ Lack of traction power ____________ Lack of fertiliser ___________

2. Which factors exogenous to the system impinge upon agricultural production?

Climatic Risk	***What happens ?***
Heavy snow	____________
Heavy rains	____________
Late rains	____________
Early rains	____________

Enter numbers from the following

(1) sown seeds rot; (2) pest and disease; (3) poor grain filling; (4) poor germination; (5) good; (6) flooding

3. Crop rotation

____

4. In which month did you plant wheat last season? ______________________________

5. What is the right planting date for wheat?________________________________

Fruit

Which of the following fruit trees do you own and how many?

Tree	***Number***	***Tree***	***Number***
Apple	______	apricots	______
Peach	______	Mulberry	______
Walnut	______	Other: ____________	______
		____________	______

Poppy

1. Do you grow poppy? Yes ____________ No ____________
2. If yes, how much do you earn from one jerib? ____________
3. Would you allocate irrigated wheat land to poppy? Yes _______ No _________
4. If yes, how much? all of it ______ some of it _________; dry land only ____________
5. How much do you spend on growing and harvesting one jerib of poppy? ____________
6. Under what conditions would you give up growing poppy? ________________________________

____

7. How many members of your family use heroin? men_________ women ___________
8. How many members of your family need treatment/counselling? ____________

Livelihood and Household Perception

1. Have you been a refugee yes _________ No ____________
2. Is your home livable now? yes _________ No ____________
3. Is there any member of your family working away from home (give no.) ______________
4. Does your family experience food deficit? Yes ________ No ____________
5. If yes, in which months? ____________ ____________ ____________ ______
6. How do you meet the shortfall in food? (coping/adjustment strategies)
   - Borrow money ____________
   - Sale livestock ____________
   - Seek help from relatives and friends ____________
   - Change diet from wheat/rice to maize ____________
   - Relocate children with relatives ____________
   - Sale household items and jewelry ____________
   - Take loan in grain ____________
   - Find work elsewhere ____________
   - Rent out land ____________
7. What is the average number of pair of shalwarkamis your family members have? ______________
8. How many meals can your family afford in a day? In the winter ____________

   in the summer ____________

Health

Child mortality

1. Total number of births in the last 5 years ______
2. Number live births______
3. Number of births attended by traditional birth attendant______
4. Number of deaths under fives______
5. Reasons for deaths (if known)______

Immunisation

1. Are your children and women of child-bearing ages immunised yes____ no____
2. If yes, against what: BCG______ DTP______ Polio______Measles______
3. If no, why not: ______

Drink waterand Sanitation

1. Where do you get your drinking water from: covered well_____ uncovered well_____ well with hand pump______ river______ stream______ karez ______ pond______ spring______ other______canal______
2. Where is the source of water located (m)______
3. If a well, is there a latrine near the well: yes______no______
4. What is the distance between well and latrine (m)______
5. How many households share this water source ______
6. Where do domestic animals usually drink water: tank/pit near the well______ river/stream______kareezes______
7. Is the water source (well, stream/spring) improved in this area: yes______no____
8. If yes, by whom: themselves______NGO______Government______
9. Who is responsible for the maintenance: themselves____NGO______Government__
10. What do you do when the water is not clean for drinking: boiling_____filtering_____ Sedimentation______chlorination______other______
11. Do you have access to a latrine yes______no______
12. Where do you throw your waste (other than food): a specified place in or outside the house______ Anywhere outside the house______ in the river__other______
13. What do you do with waste water: drain to the fields______to the river/stream___ Drain to the kitchen garden______anywhere outside the house______drain to the soaking pit____other______

Diseases

1. Did your household receive health education yes____________no_______________
2. From whom: NGO______Government________other__________________________
3. When is diarrhea most common: summer______ winter _______other_____________
4. When someone has diarrhea, what is usually done to stop it

   See the doctor_________ see traditional healers ______

   Give solid food________ stop giving solid food______

   Give water____________ stop giving water__________

   Continue normal feeding_______stop normal feeding________

   Give ORS____________ give herbs_______________

   Other________________
5. Do you know ORS yes_________no__________
6. If yes, who told you: NGO______villagers______government__school_______other__
7. Where do you get it from: make it at home_____bazaar_______clinic________other__

Livestock

Number of animals and main reasons for keeping animals

Number of animals		cow	ox	buffalo	sheep	goat	donkey	horse	poultry	duck	camel	other
Male												
Female												
Immature												
Output (1997)												
Milk	Liter/day											
	Number of months											
	Amount sold											
	Value (Afs)											
Meat	Number butchered/year											
	Kg meat sold											
	Value (Afs)											
	Period											
Eggs	Number/day											
	Number/year											
	Amount sold											
	Value (Afs)											
Wool	Number shearings (when)											
	Kg wool											
	Amount sold											
	Value (Afs)											
Skin	Number											
	Amount sold											
	Value (Afs)											
Animals vaccinated (thickmark)												
Vaccinated by whom												
Number of times you wash/disinfect your animals												

Breeding, offspring and mortality

	cow	ox	buffalo	sheep	goat	donkey	horse	poultry	duck	camel	other
Number of births in 1997											
Number of neo-natal deaths in 1997											
Number other deaths (no butchering)											
Reasons deaths											

Grazing and feeding

1. Which months is there a deficiency of animal feed____
2. What contributes to the deficiency: lack of fodder_____lack of labour during hay period__________poor conservation)______________
3. How do you overcome this shortage in fodder: buy fodder_____buy maize stover____buy straw from grain_______sale animals________

take animals to other place/transhumance_________

2.5. The Survey Team

Key survey team members were from AAD and comprised an economist, agricultural engineer and agriculturist. Four surveyors supported the team: two from CARE Afghanistan, one from Afghan German Basic Education and one from AAD. Team members have discussed the methodology and studied the questionnaire before travelling to the field. Much of the planning was also completed in Peshawar – e.g. mapping, criteria for sample selection, identification of villages and their location, accessibility, etc. However, modifications were also made in the field, depending on how circumstances changed.

The survey was implemented in two rounds: 15th to 26th of March in Wardak, 21st to 28th of April in Nuristan. Each survey team had four members. The team implemented the survey in two pairs: one pair (a team of two) facilitated the group discussion and implemented RRA at the community level while the other team administered the household questionnaire. The team composition and the tasks have changed every day. This was important to maximise interdisciplinary interaction, minimise bias and also expose the surveyors to the survey techniques. After a day's work, the team has exchanged views and experiences and sought further clarification on issues that were not clear enough during the day.

2.6. Data Analysis and Report Writing

Owing to the volume of information collected, the time constraint and, above all, the need to process the data with computers, the report was not drafted in the field. Data entry, analysis and report writing was done in Peshawar, and it has taken eight weeks to complete. All the data were entered in a database created in "ACCESS". The data were then queried and exported to "EXCEL" and other packages for analysis. The analysis was kept to the level of descriptive statistics and simple bar charts. However, instead of just defining averages (which is the usual practice in RRA and PRA), the analysis aimed at showing variations between households, farm sizes and districts in the general practices, resource acquisition, income distribution. These variations are tested by a "means test". Classifications by farm size and status, household size, etc. are meant to improve data organisation and presentation, besides capturing variations in practices, resource acquisition and use.

Part II. THE CASE-DISTRICTS

2.1. Some Characteristics of the Districts

Table 1 provides a summary information about the districts. Wardak is located some 55 km southwest of Kabul. It borders in the north and east with Kabul and Logar; in the northwest with Parwan and Bamiyan and in the south with Ghazni. Wardak is divided into nine districts. Maidan Shar, located on the main highway to the south, is the capital. Chak and Dai-Mirdad districts are located to the southwest (see Map 1). The irrigated and fertile valley stretches from Dashtee Toop all the way to Hazarajat, dissecting Chak and Dai-Mirdad into two. Many villages are located in this narrow valley. Farther away from the valley, land becomes drier. Farms are small and inadequate to support the population. Off-farm work in Pakistan and in the Gulf provides additional source of income. Chak is predominantly a Pahstun district. Dai-Mirdad use to be a multi-ethnic district where Pashtuns and Hazars lived side by side. Over the past years, especially since Taliban emerged as a military force, the Hazaras have been pushed westward from the central part of the district to Behsud (see Map 1 for frontline location)

Nuristan is divided into three administrative regions: east, west and central. Nuristan was recognised as a province by the Najibullah government. Later, Rabani's government reaffirmed this. But since the Taliban assumed power, Nuristan has not been given a provincial status. In Kamdish and Bergimatal, the commanders and governors are Nuristanis but Taliban. Administratively, Nuristan is divided into two: Kunar is administering the eastern districts of Kamdish and Bergimatal. Some districts in the central region also come under the administration of Asadabad. West Nuristan is administered from Mehterlam, Laghman. This divide and rule system seems to work very well for Taliban. They are able to control the province, from outside and, above all, without fighting for it. The fact that district governors and commanders are from the local population – a practice which is not seen in any other part of the country where Taliban control – has given Taliban a foothold in the province.

Table 1. District Matrix

	Chak	Dai-Mirdad	Kamdish
Distance from province centre	51 km	124 km	116 km (Asadabad)
Projected population, 1998	83,812	42,844	40,127
Ethnic group composition	Predominantly Pashtun	Pashtun & Hazara	Predominantly Nuristani
Religious denomination	Sunni	Sunni and Shia	Sunni
Security situation	Good	The frontline between Hazara and Pashtun peoples is located to the west of the district; however, the situation is normal and people do not expect an inter-ethnic conflict	Tension between rival commanders in the nearby district, Bergimatal
No. still refugee	29	0	95
Socio-economic situation	Main source of income is off-farm employment and remittance. Agriculture and livestock is mainly for home-consumption. Export of potatoes and apples on small scale.	Main source of income is off-farm employment and remittance. Agriculture and livestock is mainly for home-consumption. Export of potatoes and apples on small scale.	Off-farm employment and incomes supplement agriculture and livestock production.
Export items	Potatoes and apples	Potatoes and apples	Timber
Handicraft	Glim, embroidery, rugs	Glim, embroidery, prayer mats	Rugs, wood carving, blankets, furniture
Aid agencies	Avicen, CoAR, DACAAR, SCA, RDA, private hospital	Avicen, SCA, DCA, Arabian clinic	Madera, AMI
No. of skilled persons[1]	182	27	140
No functioning primary schools	4 schools (boys) having 1175 students	3 schools (boys) having 135 students	0
No. of functioning secondary schools	3 schools (boys) having 400 students	1 school (boys) having 31 students	0
No. of health clinics	4	1	0
No. of hospitals	1	1	0
No. of trained medical persons	26	6	0
No. of TBAs	13	20	112
Immunisation status	Yes	Yes	Not in all villages
No. of chemist shops	3	0	0
Drinking water sources	Well, kareez, canal, river	Well, kareez, canal, river	Spring, river
No. of veterinary clinics	0	1	0
Status of road to district	Dirt, could be closed for some days during winter	Dirt, could be closed for some days during winter	Dirt, could be closed for months during winter
No. of transport vehicles	7	0	0
No. of shopkeepers (average)	8	2	21
No. of mills	About 45	About 40	About 6
Flood protection needed	400 dikes	90 dikes	200 retaining walls, 250 protection walls
Poppy cultivation	None	None	None
Fuel sources	Bushes	Bushes	Forest trees

[1] Carpenters, masons, blacksmiths etc

Located some 100 km east from Asadabad, the provincial town of Kunar province, Kamdish is one of the two districts that makeup East Nuristan, the other being Bergimatal (see Map 2). Nuristani is the main language, but a few people also speak Pashtu fluently. Those who have been to other parts of Afghanistan for education, military service or trade can speak Dari as well. A few kilometres pass Barikot, the mountains stretch northward through Kamdish, continuing into Bergimatal. The mountains bounding the valley rise very high and present a wild and craggy appearance; close to the summit timber dominates. But the lower slopes are covered with shrubs and trees usable for fuel and fencing. Settled villages and agricultural fields are located on the mountain slopes and in the valleys. Multi-enterprise farming with a high dependence on livestock dominates the system.

2.2. Land and Population

Without doubt, land is the dominant scarce factor in all the case-districts. In table 2 we observe that in the mid-1970s a tiny proportion of the area was under cultivation in the case-districts. Pastureland accounted for about two-third of the total area in Chak and Dai-Mirdad. Virtually all the land in Kamdish was covered by forest. With the growth in rural population and the need to acquire additional land, over time, area cultivated has increased. Today land with a potential for agriculture is scarce in absolute terms and is no longer accessible to everyone without a lot of effort. Uncultivated land is also of lower quality than that currently farmed, and it requires considerable investment to develop; it needs, above all, irrigation and stone removal before it can be farmed.

Table 2. Landuse and Population Growth

	Total Area (Jeribs)	Percentage of Total			
		Pasture	Forest	Fallow	Under Cultivation
Chak	20,950	61.8	---	6.4	31.8
Dai-Mirdad	21,040	70.9	---	4.8	24.3
Kamdish	553,690	1.3	95.9	0.5	2.3

District Total Population	1997	1998[1]
Chak	53,150	83,812
Dai-Mirdad	27,170	42,844
Kamdish	25,447	40,127

MRU Projection from the equation where r is 2%, the rate of growth for Afghanistan
Source: Historical and Political Gazetter of Afghanistan, Volume 6, 1985. Data pertain to circa 1976.

2.3. Agriculture

Historically, the peoples of Wardak and Nuristan lived off their animals and despised agriculture. Over the past 100 or so years, however, cropping has become a necessity. One of the reasons for this sedentary way of life is that cultivation expanded into grazing lands; the Nuristanis, for example, lost much grazing land to farmers from Kunar. This, coupled with diminished herd size due to diseases, compelled people to crop as well as keep livestock. In Nuristan, millet was the first crop to be introduced. Over the past 50 years, however, millet was superseded with maize and wheat. Now maize dominates the cropping regime with wheat taking a secondary place. Cultivation is both on the mountain slopes and on the foot of the mountain around the river gorges. In the valleys in particular, nursery type of plots are "constructed" by clearing bushes and removing stones. In some locations, land-hungry farmers literally create new fields by digging out stones and dynamiting rocks and making field beds. This particularly typifies the valley; it is very narrow and yet the Kamdish river takes much of the available land. The lack of large open land ideal for cultivation means that each household can have many fields, some fragmented in several locations.

There is relatively more land on the mountain slopes; but this is not possible without clearing forest. Moreover, the higher the mountain the steeper the slope, thus making it difficult to cultivate. Hill agriculture is vulnerable to soil erosion and land degradation. We understand that the scarcity of agricultural land tends to improve in Bergimatal district. The reconnaissance team that visited the district in February reported the availability of open field agricultural lands in Bergimatal.

Agriculture in Wardak is typified by small farm. The districts under study (Chak and Dai-Mirdad) comprise irrigated valleys as well as dry parts. In some villages, irrigated land accounts for about a-third of the cropped land. Most of the cultivated land in Chak and Dai-Mirdad is located in the valley. Cooler climate and shorter growing season restrict agriculture to the cropping regime of wheat and potato. The soil and climate are also suited for orchards.

2.4. Crop Enterprise

Communities were asked to rank their key crop enterprises (Table 3). In Chak and Dai-Mirdad districts, wheat and potatoes are the major crop enterprises, followed by fruit, alfalfa and rice. In Chak, many households grow fruit trees than potatoes, and yet potatoes are ranked higher. In Kamdish, communities rank maize, beans and wheat as their important crop enterprises, followed by millet and potatoes. Maize is grown by 79% of the people in the sampled villages. Most people have fruit trees, and yet they are not perceived to be important because the output is not marketed. The number of fruit trees (mostly walnuts) per household is also small, about 4.

Table 3. Ranking of Key Crop Enterprises (percentage)[1]

	wheat	rice	maize	barley	potato	fruit	Alfalfa	beans	millet
a) Chak									
1st rank	100								
2nd rank					100				
3rd rank		20		20		40	20		
4th rank		20	20			40	20		
Households growing	67	19	6	1	35	58	17		
b) Dai-Mirdad									
1st rank	100								
2nd rank					75	25			
3rd rank		25				25	50		
4th rank				25	25	50			
Households growing	89	14		17	75	64	24		
c) Kamdish									
1st rank			75					25	
2nd rank	100								
3rd rank					25			25	50
4th rank				33				33	33
Households growing	18		79	1	4			29	4

[1] The data on the number of households growing specific crops correspond to the community level and, therefore, differ from household data.

2.5. Tree Plantation

Farmers in Chak and Dai-Mirdad districts plant different varieties of popular trees for timber and fuel purposes (Table 4). The trees are planted along the ridges of fields, roadsides and

canals. By contrast, communities in Kamdish do not plant trees; they have access to forest resources. About 2,700 timber logs/year were produced in Kamdish. This contrasts with 230 in Chak and 350 in Dai-Mirdad.

Table 4. Tree Production

	Chak	Dai-Mirdad	Kamdish
Communities involved in tree planting (%)	100	100	0
Communities involved in timber production (%)	60	100	100
Mean no. of trees planted			
• 1996	3875	1125	0
• 1997	4625	1325	0
Mean no. of timber logs produced			
• 1996	233	350	2688
• 1997	150	214	2713

One of the reasons for the low timber production in Chak and Dai-Mirdad is the lack of popular sapling, as stressed by farmers. Another reason is that trees compete with crops and fruit trees for irrigated land. Insects and animals also attack timber trees, the severity of which tends to be high in Dai-Mirdad (Table 5). There are no comparable timber related problems in Kamdish district.

Table 5. Problems Related to Roofing Timber (percentage)

	Chak	Dai-Mirdad
Lack of timber trees	36	30
Lack of irrigation water	27	10
Insects/animals	18	30
Diseases		20
Flooding	9	10
Other	10	

2.6. Irrigation

The distribution of irrigation water is thought to vary between locations and districts. Villages located farthest from the road have less water compared to villages located close to the main road. In Chak and Dai-Mirdad, these are the villages lying in the valley, stretching from Dashtee Toop all the way to Miran and beyond. The major irrigation infrastructure in these two districts consists of kareeze. Farmers reported that the time required to irrigate one jerib

of land using kareeze water has increased markedly over the past five years owing, in part, to lack of maintenance to the infrastructure.

Streams and canals are also used to irrigate fields in the valleys. Because canal intakes are constructed from local materials, they often do not withstand the spring season floods. Spring water is collected for up to 48 hours - in some villages, like Siya Chaghar, for much longer- before released (see Table 6).

Table 6. Status of Irrigation Infrastructure (time in hours)

	Chak		Dai-Mirdad		Kamdish	
	Suffic. water	Insuffic. water	Suffic. water	Insuffic. water	Suffic. water	Insuffic. water
Main irrigation source	Canal, kareez	Kareez	Canal, kareez	Canal, kareez	Spring, well	Spring, well
Average irrigated land area (jerib) per village	687	261	137	144	270	3500
• land abandoned %	43	0	21	19	0	0
• land with insufficient water %	26	40	23	96	40	-
Estimated time required to irrigate one jerib from canal:						
present status	3.3	-	9.7	9.7	-	-
5 year ago	3.3	-	-	-	-	-
Estimated time required to irrigate one jerib from kareez:						
present	22	39.7	30.4	13	-	-
5 years ago	18.2	24.3	22.9	11.3	-	-
Estimated time required to irrigate one jerib from spring:						
present	2	2.1	30	26	3	15
5 years ago	1.5	1.7	30	26	3	15
Estimated time required to irrigate one jerib from a well:						
present	-	-	-	-	6	14
5 years ago	-	-	-	-	6	14

Kamdish district is relatively better endowed with water. Rivers and springs flow in many villages, but as in Chak and Dai-Mirdad the system to tap water and irrigate fields is very much undeveloped. On the mountain slopes, springs are the major source of water. Some villages direct this water to the fields using ditches constructed from soil. However, the most

PART I. INTRODUCTION AND GENERAL METHODOLOGY

1. Introduction

In November 1997, a workshop was held for Afghanaid senior staff. Several issues were discussed at this workshop, one of which was to open programme in one or two provinces controlled by the Taliban. The task of identifying the new provinces was then assigned to the Monitoring and Research Unit (MRU). Over the past six months, three surveys have been implemented by MRU. The first survey was an assessment of information compiled after consulting reputable NGOs and individuals with sufficient knowledge of the country. The report identified five provinces – Paktika, East Nuristan (Kunar), West Nuristan (Laghman), Kabul and Wardak, and recommended that more detailed information should be collected before a judgement is made. The Directorate and the Management Committee approved this recommendation, and a reconnaissance survey was implemented in all the recommended provinces. The survey was comprehensive, in the sense that it has tested the viability of each province by applying several criteria. Having studied the information carefully and weighing both the short and long-term opportunities and risks, the report recommended Wardak and Nuristan viable for AAD programmes. The report was presented to the Directorate, the Management Committee and to Afghanaid senior staff in a workshop and received overwhelming endorsement. Subsequent to this the Directorate instructed MRU to identify districts, collect "baseline" data and submit a final report.

Once again, background information was collected from individuals and institutions about each of the districts in the respective provinces. On the basis of this information, Chak and Dai-Mirdad districts from Wardak, and Kamdish and Bergimatal from east Nuristan were identified. The Directorate accepted this and the methodology for data collection. However, at the time of the survey Bergimatal district was not accessible by vehicle. As a matter of necessity, therefore, only Kamdish was surveyed. This report on Chak and Dai-Mirdad (Wardak) and Kamdish (East Nuristan) thus completes the search for new province that began some six months or so ago.

The objectives of this particular survey are (i) to validate the recommendations made by the reconnaissance survey; (ii) to provide community and household level data; and (iii) to assess the extent to which the selected districts are ideal for AAD programmes of Engineering and

important infrastructure to tap spring water is aqueduct constructed from timber. On the surface this looks sustainable but it is inefficient in many ways. First, much water is lost through leakage. Second, the volume of water that can flow is not a lot to irrigate large fields at a time. Water has to be collected in reservoir first before being released to the fields. At the moment the reservoirs have poor water retaining capacity as they are made from sand and soil. The response from the farmer survey suggests that at least 12 hours (maximum two days was also mentioned in some villages) flow of water per aqueduct is required to irrigate one jerib of land, suggesting seepage and low retaining capacity. The intervention should be both to increase the capacity by reducing leakage as well as the flow of water. Improvement at the intake may also increase the flow of water.

Though not widely used, there are canals in the valleys. Many of the intakes are, however, either damaged or poorly maintained. On both sides of the river Kamdish, there is some land for agriculture but remains uncultivated due to lack of irrigation water. The problem is not so much the lack of water but the lack of structure to channel the water to the fields.

Irrigation water is also needed for yet another reason. In the summer, the water level goes down as the river dries up. Maize cropped during that time could not be irrigated at the required rate. Rehabilitating and constructing canals would improve agricultural production in the district.

2.7. Flood Protection

Every year, farmers lose a good deal of agricultural land when the dikes and protection walls collapse. This is a recurrent problem in all the three districts when the snow melts and river level rises. Its magnitude can be measured by the size of protection walls needed (see Table 1).

2.8. Marketing Infrastructure

From table 7 there is relatively high concentration of traders near the main roads in Chak, while the opposite holds for Dai-Mirdad and Kamdish. There are few traders in Dai-Mirdad than in the other two case-districts. Transport vehicle is available in Chak only. Given the topography and the virtual absence of motorised transport system in Kamdish, there is

relatively high number of pack animals, mainly donkeys. Villages farthest from the main road have more transport animals. Village roads could be closed for up to three months during the winter in Chak and Dai-Mirdad.

Table 7. Market Infrastructure in the Case-Districts

	Chak		Dai-Mirdad		Kamdish	
	near	far	near	far	near	far
Mean number of traders	12.6	1.5	1	2.5	17.5	20.5
Mean number of transport	7	0	0	0	0	0
Mean number of villagers owing transport animals	112	23	43	42.5	41	244.6
Mean distance to the main road (km)	1	8	1	6	1	13.5
Mean number of months road is closed/year	1.3	3	3	3	1	1
Main problems related to marketing activities (%)	33	40	50	40	40	33
• Lack of transport	33	20	50	40	20	33
• Bad road condition		20		20	20	
• High transport fare	33	20				
• Lack of capital						17
• Lack of surplus						17

Villagers were also asked to specify the main problems they have regarding marketing. Lack of transport and bad roads stand out as the two major problems in all the districts. The overall condition of the transport network is better in Chak and Dai-Mirdad than in Kamdish. Chak and Dai-Mirdad districts are connected with the highway that runs southward from Kabul to Kandahar. There is also an inter-district dirt road. This road was rehabilitated by RDA but still impassable during the peak of the winter season. Many of the villages in Chak are not too far from the main road. The tertiary roads are dirt and can be blocked during the winter for several months. People in villages farthest from the road use donkeys to travel.

In Kamdish, very few villages can be accessed by motorised transport. People have stressed that their major need would be road. This undoubtedly is right. Construction of new roads and improving existing ones can immensely contribute to the strategy of poverty alleviation. Secondary roads connecting villages with the main road are badly needed in many villages. Many of such roads require major engineering work. Within villages, however, many pony

tracks are needed and the CIP programme is well suited for this work. Besides roads, suspension bridges are critical in linking villages with the market. Villages located on either side of the Kamdish valley depend on such bridges to cross the river. The technology is sustainable as it uses local resource – timber.

Marketing is also constrained by a number of other factors, including lack of capital and meager marketable surplus. Roads can stimulate agricultural production. At the moment surpluses for the market are meager, and most households do not have any surplus to sale. In fact, there are households who have never sold any grain at all. This means that road should not be seen as an end by itself. If farmers are to benefit from it, their agriculture has to be developed so that surplus for the market could increase. It is only then that we may see road having impact on poverty alleviation. Moreover, its impact may not be realised in the short-term as the subsistence farm cannot change overnight. But its construction can have a profound effect on the development of this hitherto isolated and virtually neglected part of the country.

2.9. Location and its Impact

In order to understand the influence of location on farmers' decisions as well as on the selection of areas for programme activities within each district, villages were classified into two: near to the main road and far from the main road, as defined earlier. The results of this analysis are presented in table 8. It is clear that the results do not reveal major differences between the locations for most of the variables measured, except for area. There are no significant differences in agricultural production, health, livelihood and incomes between the villages. This suggests that proximity to the main road does not necessarily mean access to market, technology and service.[1] Villages nearer to roads are equally badly endowed in basic infrastructure like those located farthest. On this account it can be suggested that the selection of villages for programme implementation will not be biased by location.

[1] This should not be construed to mean that access to roads does not affect farmers' decision making. What the table suggests is that the difference between the two locations in the variables compared is negligible precisely because they are both poorly endowed with access to markets and technologies. The classification between "near" and "far" is a geographical concept and does not necessarily imply accessibility to road and transport.

Table 8. Comparison of Villages Located Near and Far from Main Road[1]

	Chak			Dai-Mirdad			Kamdish		
	Near	Far	F. Sign. level	Near	Far	F. Sign. level	Near	Far	F. Sign. level
Mean area cropped (jb)	4.8	8.9	0.01	6.2	2.5	0.01	2.2	4.7	0.01
Mean wheat area (jb)	2.5	3.3	n.s.	2.6	1.1	0.01	0.56	0.82	
Mean maize area (jb)	-	-	-	-	-	-	1.5	2.7	0.05
Mean wheat yield (kg/jb)	280.3	277.1	n.s.	382.4	467.6	n.s.	303.3	302.3	n.s.
Mean maize yield (kg/jb)	-	-	-	-	-	-	506.7	643.3	n.s.
Mean fertiliser application per household (kg)	72.5	56.9	n.s.	79.8	76.3	n.s.	54.7	69.2	n.s.
Mean quantity of potatoes sold per household (seer)[2]	142.3	680	n.s.	138.4	20	n.s.	-	-	n.s.
Mean quantity of fruit sold per household (seer)[2]	166	1200	n.s.	-	-	n.s.	-	-	n.s.
Mean no. of cattle/household	1.6	1.9	n.s.	1.6	1.3	n.s.	1.9	4.1	n.s.
Mean no. of sheep/ household	2.3	2.4	n.s.	4.8	5.2	n.s.	-	-	n.s.
Mean no. of goats/household	3.2	3.5	n.s.	2.1	4.3	n.s.	2.3	28.6	n.s.
Mean annual income/household (Rs)	12182	11323	n.s.	17505	13932	n.s.	5133	18276	n.s.
Mean amount borrowed per village (Rs)	7049	3140	0.05	5643	9771	n.s.	14990	3467	n.s.
Mean number of children < 5 years died/household[3]	1	1	n.s.	1.3	2.2	n.s.	1.8	1.8	n.s.

[1] Location of villages as defined in the sampling methodology; [2] only those households who are producing potatoes and fruit for the market; [3] only those households who have at lost at least a child < 5 years last year. F. is the significance level of the F statistics; n.s. stands for not significant

2.10. Livelihood Security

Table 9 suggests that migration due to the war was very low in Chak and Dai-Mirdad. It was exceptionally high in Kamdish, about 76%. It is now about 9 years since the fighting has subsided in Kamdish. This relative tranquillity has enabled people to return to their villages in large numbers (see Table 1). Virtually all the people in all the three case-districts have liveable houses, measured by local standards. People own less than 3 shalwarkamis and consume, on average, three meals a day, obviously with varying quantity and quality.

Table 9. Livelihood Security

	Chak	Dai Mirdad	Kamdish
Former refugee status (%)	12	3	76
Liveable houses (%)	95	97	83
Average number of clothes/person	2.9	2.5	2.4
Average number of meals/day	3.0	3.0	2.8

2.11. Support Services

There are no government services in either of the districts. Over the years, different agencies were engaged in three major sectors: agriculture, health and engineering. Presently, only CoAR, a private hospital and an Arabian clinic are operating in Chak; AVICEN and an

Table 10. Aid Agencies in Chak, Dai-Mirdad and Kamdish Districts

	NGO/organisation	Sector	Remark
a) Chak	CoAR	Construction	Ongoing
	DACAAR	Drinking water	Terminated
	SCA	Health	Terminated
	SCA	Education	Terminated
	Private hospital	Health	Ongoing
	RDA	Construction	Completed
	CoAR	Irrigation	Terminated
	CoAR	Agriculture	Terminated
	Arabian clinic	Health	Ongoing
b)Dai-Mirdad	SCA	Education	Ongoing
	DCA	Veterinary services	Terminated
	Arabian clinic	Health	Ongoing
	AVICEN	Health	Ongoing
c) Kamdish	Madera	Irrigation	Terminated
	Madera	Agriculture	Ongoing
	Madera	Forestry	Ongoing
	AMI	Health	Ongoing
	UNICEF	Health	Ongoing

Source: ACBAR Directory 1997 and Survey 1998

Note: CoAR = Co-ordinating Organisation for Afghan Refugees; DACAAR = Danish Committee for Afghan Refugees; SCA = Swedish Committee for Afghanistan; RDA = Road Development Afghanistan; DCA = Dutch Committee for Afghanistan; AMI = Aide Medicale International.

Arabian NGO have programmes in Dai-Mirdad. In Kamdish, Madera and AMI have programmes; UNICEF launches vaccination campaigns in Kamdish once a year. Table 10 provides an overview of the different NGOs and organisations that have worked and are still working in the districts.

2.12. Social Infrastructure

2.12.1. Health Services

Both Chak and Dai-Mirdad have access to medical services, including a hospital and clinics. In Chak district, the average distance to the Arabian clinic and the private hospital is 18 km; in Dai Mirdad, the distance to the Arabian clinic is 11 km. People in Kamdish district have access to AIM clinic but have to travel all the way to Chitral or Arandu for specialist treatment. AVICEN is providing immunisation services in Dai-Mirdad; AMI and UNICEF have similar programme in Kamdish. In Chak, the private hospital runs an immunisation programme. There are 3 chemist shops in Chak and none in the other two districts. There are not many trained medical persons in either of the districts, apart from those working for the medical establishments. There are 26 trained medical persons and 13 traditional birth attendants in Chak. The corresponding figures for Dai-Mirdad are 6 and 20. In Kamdish, there are no trained medical persons, but quite a few untrained but experienced traditional birth attendants can be found (refer to district matrix, Table 1, for details).

2.12.2. Education

Both Chak and Dai-Mirdad districts have access to the SCA education programme, which includes construction of school buildings and distribution of books and stationary. In Chak, there are 10 primary and 7 secondary schools still functioning. The corresponding figures for Dai-Mirdad are, respectively, 3 and 4. Not many children are, however, able to finish secondary school level as they are sent to Pakistan, Iran and Saudi Arabia to work and remit cash to their families. Being Taliban ruled area, there are no education facilities for girls in both Chak and Dai-Mirdad.

There was an elementary school in Kamdish, but since Taliban moved there the building has been turned to an office-cum-residence by the authorities. There is no other school in the district.

2.12.3. Veterinary Services

Sometime in the early 1990s or so, the Dutch Committee for Afghanistan (DCA) operated a small veterinary clinic in Dai-Mirdad. The livestock programme of DCA was similar to that of Afghanaid, except that DCA worked more with paravets and less with basic veterinary workers (BVWs). After DCA completed its activities, the local paravet has continued operating in the area to this date. There are no veterinary services in Chak and Kamdish districts.

PART III. HOUSEHOLD DATA

Parts III to VI present information on household level. Household is an important set of study, because within the household resources are pooled, income is shared and decisions are made. Households are farmers; they cultivate the land and also keep animals.

3.1. Basic Characteristics of the Sample Households

Household size and structure can have significant effect on production and consumption patterns. This is more likely be the case in subsistence economy where consumption needs and the volume of economic activity are related to the quantity and value of labour available in the household. Table 11 presents a cross-sectional data for all the case-districts.

Table 11. Mean Household Size in Chak, Dai-Mirdad and Kamdish

	Overall Mean	Household	Size		F. sign. level
		4-10	11-14	>15	
Chak	13.51	7.55	12.41	19.50	0.01
Dai-Mirdad	11.28	6.55	12.40	19.36	0.01
		2-5	6-9	>10	
Kamdish	8.29	4.11	6.79	13.38	0.05

The mean household size in Chak stands at about 14 persons per household, compared to 11 in Dai-Mirdad and 8 in Kamdish. It seems that extended family groups of two or more generations live in the same household in Chak and Dai-Mirdad while fission takes place much quicker in Kamdish. The F-test suggests that there is significant difference in the number of persons between household groups in the case-districts.

The consumer: worker ratio is near unity in Chak and Dai-Mirdad, but shows marked difference in Kamdish (Table 12). Whereas there is one consumer for every worker in Chak and Dai-Mirdad, this ratio is just over half in Kamdish. In other words, there are fewer children than adults in Kamdish and about the same number of producers and consumers in Chak and Dai-Mirdad.

Table 12. Consumer: Worker Ratios[1]

	Mean No. of Consumers	Mean No. of Workers	Ratio	F-sign. level
Chak	6.5	7.0	0.93	n.s.
Dai-Mirdad	5.2	6.1	0.89	n.s.
Kamdish	3.2	5.1	0.63	0.001

[1] consumer < 14 years

In table 13 we show the mean labour force available to a family. It is apparent that larger households also have larger labour force. This difference between households is found to be significant at alpha 0.01 for all the districts.

Table 13. Mean Labour Force (>14 years) Per Household

	Overall Mean	Household Size			F. sign. level
		4-10	11-14	>15	
Chak	7.02	4.18	5.88	10.57	0.01
Dai-Mirdad	6.11	4.00	7.64	9.12	0.01
		2-5	6-9	>10	
Kamdish	5.07	3.11	4.10	7.85	0.01

If it is assumed that farm households with larger labour endowments cultivate larger area than the less well-endowed counterparts, then we would see a significant association between household size and area operated. This is because larger households who also have larger labour force are able to apply their labour and operate relatively larger size. Other things being equal, therefore, we would expect this to hold for all the districts. The result of a simple correlation analysis indicates that household size is not significantly correlated with area operated in Chak and Dai-Mirdad. For Kamdish, there is a positive and significant correlation where $r = 0.83$ ($\alpha = 0.05$).

The result of the cropped area analysis is presented in Table 14. As wheat is the single most important food crop cultivated in Chak and Dai-Mirdad, it is a reasonable measure of cropped area. For Kamdish, the analysis is made for both wheat and maize separately for the same reason that these two crops account for the largest share of the area cropped. As we see from Table 14 cross-sectional data, neither of the districts shows statistically significant

relationship between household size and cropped area. The critical factor is land not household size or labour. In the highly productive valleys of Chak and Dai-Mirdad, many farm households are unable to expand area cropped regardless of the size of households.

Table 14. Area Cropped by Households

	Overall	Household		Size	F. sign.
	Mean	4-10	11-14	>15	level
Chak: wheat	2.84	2.60	2.97	2.88	n.s.
Dai-Mirdad: wheat	1.85	2.17	1.36	1.50	n.s.
		2-5	6-9	>10	
Kamdish: wheat	0.67	0.50	0.63	0.85	n.s.
: maize	1.99	1.56	1.84	2.52	n.s.

n.s. means statistically not significant

3.2. Farm Size and its Distribution

Farm size is a fundamental factor affecting strategies to increase agricultural production. In all the case-districts, agricultural production is a family enterprise, and it is organised on a small scale. There are few large landowners in Chak and Dai-Mirdad that operate large holdings. The maximum area operated by a household in Chak is 25 jeribs, compared to 18 in Dai-Mirdad and 16 in Kamdish. The mean area operated is 6.45 jeribs in Chak, 4.34 in Dai-Mirdad and 3.23 in Kamdish. The area difference between household groups is not statistically significant, as indicated by the F-test. Table 15 summarises the relevant information for the districts.

Table 15. Mean Area Operated by Households (jeribs)[1]

	Overall		Household	Size		F. sign.
District	mean	Maximum	4-10	11-14	>15	level
Chak	6.45	25.1	5.39	7.35	5.88	n.s.
Dai-Mirdad	4.34	17.9	3.74	4.93	3.52	n.s.
			2-5	6-9	>10	
Kamdish	3.23	16.0	2.83	2.91	3.98	n.s.

[1] area operated is area owned plus sharecropped

Community Development. The data will also be used by MRU as a "baseline" in order to compare programme impact in the future. Even though the objectives of this survey are not different from the previous two surveys, the right methodology had to be defined.

In this regard we have read two previous RRA reports: one on Ghor, another on Badakhshan. Our approach, methodology and report structuring is somewhat different from these previous reports. This report contains quantitative as well as qualitative information on each of the districts. We believe we have addressed a few issues relevant for policy formulation. Sampling and data collection was done at two levels: the community and the household. The community level data focused on farm households collectively, their general activities and practices, and relationships among them. The household level data was concerned with the farm/production unit. A range of other issues that may influence area selection were also analysed and presented. Using the empirical analysis as a basis, the report finally outlines the potential each district holds in terms of programme implementation. It also discusses constraints, both at present and in the future. The report validates many of the broader conclusions made by the reconnaissance survey. We affirm that relative to Wardak, East Nuristan offers a better environment to implement Community Development (CD) and Engineering Programme (EP). The region is stable, politically and militarily. The relative openness of the society and the desire in part of the people and the authorities to work as partners mean that many of the programme components now tested in Badakhshan can be implemented in East Nuristan with no or little modification and further testing. Also, the region is poorly endowed with social and physical infrastructure. This means that interventions will have immediate direct impact on poverty. These conditions and opportunities are not satisfied in Wardak at the moment. Since there is continuity in the objective, we suggest that this report should be read along with the reconnaissance report submitted in February in order to form a better opinion.

The report is structured in eight major parts. Part I deals with the introduction, objectives and methodological issues. In Part II, the main features of the districts are presented and relevant comparisons are made. The discussion is directed at the community-level by aggregating the data into location and district-wise. In Part III, farm household level data is presented. Having classified households by farm and household size, the basic characteristics of households are presented. The section also deals with the distribution of farm sizes and production relations.

Table 16. Frequency Distribution of Area Operated (jeribs)

Operating Group	Percent of HHs X	Cumulative percentage	Percent area operated	Cumulative percentage Y	ΣXY
a) Chak					
< 3	28.6	28.6	8.9	8.9	0.02545
3.1-6	33.3	61.9	25.9	34.8	0.11588
6.1-9	21.4	83.3	24.3	59.1	0.12647
>9.1	16.7	100.0	40.9	100.0	0.16700
					0.43481
	Mean area operated = 6.46 jeribs				
	Gini Coefficient = 0.57				
b) Dai-Mirdad					
< 3	47.2	47.2	19.0	19.0	0.08968
3.1-6	30.6	77.8	30.4	49.4	0.15116
6.1-9	13.9	91.7	21.9	71.3	0.09911
>9.1	8.3	100.0	28.7	100.0	0.08300
					0.42295
	Mean area operated = 4.34 jeribs				
	Gini Ceofficient = 0.58				
c) Kamdish					
< 2	36.6	36.6	14.1	14.1	0.05124
2.1-4	43.9	80.5	43.6	57.7	0.25330
4.1-6	12.2	92.7	20.0	77.7	0.09479
> 6.1	7.3	100.0	22.3	100.0	0.07300
					0.47236
	Mean area operated = 3.23 jeribs				
	Gini Coefficient = 0.53				

The pattern of size distribution for the sample farm households, as measured by area operated, is illustrated by the data for the three districts in table 16. As is typical of most developing countries, these size distributions show the majority of farm households operating a far less than proportionate share of the total area farmed. In Kamdish, the bottom 37% of households crop 14% of the total area, compared to the top 7% who operate 22%. In Chak, the bottom 29% crop just 9% of the total area compared to the top 18% who crop 41% of the area. The picture is the same for Dai-Mirdad: small farmers share unequally in agricultural land. A statistical test was made to establish the difference in the mean area operated between the size categories. Taking a Gini ratio of zero to represent equality of access to agricultural land, we observe that access to land is slightly unequal in Dai-Mirdad than in Chak and Kamdish. However, the distribution between sizes is not significantly marked by disparity. A

Gini ratio of <6.0 is commonly held to apply to agrarian economies where technological and economic conditions are static. On this account, we may say that the agrarian structure in all three districts is not fully bifurcated into farm classes.

3.3. Production Relations

3.3.1 Land Tenure

The system of land tenure prevailing in all the districts is, by and large, the same; it is a mixture of private ownership and sharecropping. There are not many landless households. The proportion of area cultivated by owners and sharecroppers is shown in table 17. The data show that just over two-third of the farm households studied in Kamdish are owners and crop 74% of the total area. In Chak, owners account for 50% of the sample and operate 46% of the total area; owner-cum-sharecroppers make 43% of the sample households and operate 51% of the area. In Dai-Mirdad, nearly 70% of the households are owners and crop 71% of the total area.

Table 17. Percentage of Total Area Operated by Farm Status (percentage)

	Owners		Owner-cum-share		Share proper	
	Area	Households	Area	Households	Area	Households
Chak	45.6	50.0	50.7	42.9	3.7	7.1
Dai-Mirdad	71.0	69.4	29.0	30.6	0.0	0.0
Kamdish	74.1	68.3	21.4	21.9	4.5	9.8

Tenancy arrangements show slight variation between the districts. In Chak and Dai-Mirdad, the landlord gives land, fertiliser and seed. He also pays for irrigation water, where expenses are incurred to irrigating farms. The sharecropper contributes all the labour required for cropping and also bullocks and labour for threshing. Two third of the output goes to the landlord and a third to the sharecropper.

In Kamdish, the contract is on a fifty-fifty basis; the landlord contributes by way of inputs as well as of course the land. He also contributes all the traction power and half of the labour cost needed to prepare the land and plant the crop.

Contracts appear to be oppressive in Chak and Dai-Mirdad in particular. The higher rental share means that the sharecropper is left with little output. The sharecropper can be expected to increase his crop share if cropping patterns change and yields increase. This is because the sharecropper's total costs involve family and bullock labour, and these cost elements are unlikely to increase substantially with a change in technology.

3.4. Farm Size and Productivity Compared

Table 18. Mean Yield Per Jerib of Major Crops by Farm Size (seers)

	Farm Size				F. sign. level
	<3	3.1-6	6.1-9	>9	
Wheat:					
Chak	25.9	40.7	49.3	48.6	n.s.
Dai-Mirdad	51.3	55.6	55.3	59.1	n.s.
Maize:					
	< 2	2.1- 4	4.1- 6	> 6.1	
Kamdish	54.4	80.1	56.9	111.2	n.s.

Using yield as an efficiency measure, table 18 presents a summary information on the relationship between farm size and productivity in the districts. The data in the table indicate relatively lower yield gains by small farm size groups, particularly in Chak. But the statistical test showed no association between farm size and productivity for all sizes in all the three districts, suggesting that productivity gains are evenly distributed between farms. It can be concluded that large farms, despite being endowed with better and larger resources and possibly inputs as well, do not achieve yields higher than the resource poor small farmers.

PART IV. AGRICULTURAL PRODUCTION

4.1. Cropping Patterns

Cropping patterns differ widely both between and within the districts. Wheat and maize are the two most important crops grown in Kamdish. Wheat is an important winter crop accounting for just over 20% of the total area. It is particularly important in the valley and along the river stretching all the way to Bergimatal district. Because the growing season is short, wheat is planted in the winter so that it can be harvested in time for planting maize in April. High up on the mountain slopes, maize is the major smallholder food crop. It is planted in April/May and harvested in August/September. By October/November, the winter will begin, leaving no time for land preparation to grow wheat. Hence, only one crop -- maize – is harvested in a season in the mountainous villages. Moreover, the winter coincides with the arrival of the animals from the summer grazing pastures. If the land was to be occupied with winter crops, there will be no grazing left for the animals, even though they would be mostly stable fed. Another reason is that the winter season is longer in the mountains. Wheat sown in the winter in November would remain under the soil for 5 months and may end up rotting before even germinating. This prolonged winter month, especially when followed by heavy snow, does not favour the cultivation of wheat.

Table 19. Allocation of Agricultural Land (Percentage Cropped Area)

Crop	Chak	Dai-Mirdad	Kamdish
Wheat	44.0	42.6	20.8
Rice	3.6	1.3	n.g.
Maize	0.2	n.g.	61.6
Millet	n.g.	n.g.	2.6
Potato	11.4	12.3	1.1
Beans	n.a.	n.a.	1.1
Vegetable	1.7	0.1	n.a.
Fruit	17.1	13.9	n.a.
Alfalfa	1.4	1.6	n.g.
Clover	5.3	5.8	n.g.

Note: n.a. means that land was not specifically allocated for this crop- hence, respondents could not say exactly how much land has been sown; n.g. means the particular crop was not grown last season. Percentage cropped area is derived by calculating the proportion of each crop area in the total area operated by the sample households of each district.

Taste and productivity also influence farmers' decision to grow maize. Farmers say the taste of maize bread is better than that of wheat bread. The productivity per unit land of the two crops suggests that farmers can get more yield per jerib from maize than from wheat. Thus, for a combination of reasons maize dominates the farm system in the mountains. On average, about 80% of the total farmed area in the summer season is planted with this crop. In the valleys, this share falls to 60% or even less. Here maize is more like a "hunger breaker" for on-farm consumption. It can be harvested early as it has a shorter production cycle than even millet which is also grown, albeit in small area. Hence it can cover the food deficit gap of the winter season prior to the harvest of wheat. Land is therefore more intensively used in the valley than on the mountain slopes.

Beans are also important summer crops, intercropped with maize. Summer vegetables such as tomatoes, eggplant, onions, carrots, etc. are also important, more for their dietary value than for the area they occupy. While demand for these products is high, especially in the nearby market centres such as Barikot and Arandu, farmers in Kamdish plant quite small plots, averaging a fraction of the total cropped area. The lack of roads and transport system to connect villages with market centres pose constraints even to those who are responsive to market stimuli.

In Chak and Dai-Mirdad, by contrast, wheat is the principal foodgrain. As table 19 shows over 40% of the total cropped area in Chak and Dai-Mirdad is sown with wheat. Rice is cultivated in flooded and well- irrigated areas. Farmers with access to abundant irrigation water grow rice both for subsistence consumption and for generating cash income. However, rice is far less important as a smallholder crop than wheat.

Potato is another category of staple – besides cereals – which plays a major food-security and cash-generating role in the cropping pattern of farmers in Chak and Dai-Mirdad. It accounts for 12% of the total annual cropped area in these two districts. It acts primarily as an insurance crop for subsistence consumption since it can be kept in the ground for some time as a reserve food supply in order to cope with periods of food shortages. A substantial quantity of the annual output, about 43% in Chak and 39.1% in Dai-Mirdad, is also marketed, suggesting its role as a cash crop. Potato is also cultivated in Kamdish, but in small piece of land – about 2% of the total annual cropped area - and is meant entirely for household consumption.

As far as vegetables are concerned, these are largely grown in the summer season, but disappear from the family menu by the time the winter is set. The data suggest that the proportion of households growing vegetables and the area allocated to them is relatively small in all the three districts. The option to diversify nutrition by growing vegetables is constrained by ignorance as well as food preference that emphasises animal protein. Vegetables are commonly known as "kitchen-garden", planted and looked after by women. In Kamdish, wild mushrooms are collected from the mountains and exported to Pakistan by visiting traders. The implication here is that there is the potential to diversify production and increase farm output to improve nutrition and income.

Besides the major staples and vegetables, farmers grow several types of fruit for subsistence and cash. Apple, mulberry and apricot dominate orchards in Chak and Dai-Mirdad. Much of the output is exported to Pakistan, the rest being sold in the major markets in the country – Ghazni and Kabul. No export crops are found in Kamdish. Nuristan may be known for walnuts, but there are no orchards in Kamdish. Walnuts, mulberry and some apricots are planted on the ridges of farms. One reason being the lack of land that can be allocated for orchards. It would be costly for the subsistence farmer to allocate his meagre land to tree crop with a gestation period of 8 or so years. It is rational to allocate land to food crops that meet subsistence requirements and plant some trees along the edge of the fields. Therefore, average walnut tree per household is 4.

Another reason may be the lack of awareness about orchards. In parts of Wardak, specialists from the Ministry of Agriculture were able to disseminate both knowledge and improved fruit seeds and seedlings of apples and other fruit varieties so that today most farmers in Chak and Dai-Mirdad have orchards for the market, even those cultivating much smaller plots than their kin in Nuristan. This change in the traditional farming system has bypassed the Nuristanis, and the walnut variety remains local. Consequently, the productivity of walnut tree has not shown marked improvement overtime. The average yield from a fully-grown walnut would be 5 seers per year, and even then it fluctuates widely. Low and fluctuating yield is a deterrent to commercialise output.

Still another explanation is that unlike in Chak and Dai-Mirdad where there is a desperate need for fuel wood and timber, which fruit trees provide, there is little concern of this nature in Kamdish. The fruit trees, once passed their production year, are cut for fuel and timber.

Understandably, therefore, farmers in Chak and Dai-Mirdad value their fruit trees both for their production and use-value. This is typical of agricultural intensification, induced by land shortage arising from population growth discussed above.

4.2. Variation in Cropping Pattern by Farm Size

An essential aspect of household economics is its subsistence nature of production. In all the districts, consumption and production aspects are closely linked in the home economies. Almost all the interviewed households in Chak and Dai-Mirdad grow wheat. Table 20 shows that wheat is more important for smaller farmers in all the three districts. However, large farmers also allocate, in real terms, more land to wheat. In Kamdish, maize is the dominant food crop. Hence, all farmers crop it. Production of grains is primarily for home consumption; only meager surpluses after meeting subsistence needs are sold for cash, very often in local bazaars. Being a cash-cum-subsistence crop, potato accounts for large area in Chak and Dai-Mirdad than in Kamdish. Once again small farm groups allocate relatively more land to this crop than the large farm operators.

Table 20. Variation in the Cropping Pattern between Farm Sizes

A) Chak

Farm Size	N	Wheat	Rice	Potato	Fruit & Veg.
< 3	12	36.9	4.1	20.7	30.0
3.1 – 6[A]	14	47.3	1.1	11.7	33.7
6.1 – 9	9	53.6	0.0	15.0	12.9
> 9.1 jeribs	7	4.4	7.2	7.5	10.3

B) Dai-Mirdad

Farm Size	N	Wheat	Rice	Potato	Fruit & Veg.
< 3	17	39.1	0.0	12.0	22.2
3.1 – 6	11	55.9	2.1	20.2	13.8
6.1 – 9	5	41.5	3.2	9.5	16.2
> 9.1 jeribs	4	31.7	0.0	6.3	9.4

C) Kamdish

Farm Size	N	Wheat	Maize	Millet	Potato	Beans
< 2	11	18.7	90.7	3.7	2.9	0.0
2.1 – 4	18	29.1	60.1	4.0	2.4	2.4
4.1 – 6	9	47.1	61.2	2.4	2.4	0.6
> 6.1 jeribs	3	30.5	54.2	0.0	0.0	0.0

[A] large farm operators do not cultivate all their land. In this respect large farmers are inefficient.

4.3. Crop Rotation

The traditional farming system in Chak and Dai-Mirdad can be expressed as a fallow-rotation system, the length of the fallow period depending on the relative size of farms. In some villages, however, population growth and the lack of new agricultural land has induced intensification of cultivated area and, hence, a reduction of fallow periods. Consequently, the annual wheat is cropped in land occupied by fruit trees.

On land which is not planted with fruit trees, crop rotation is possible, and it tends to be very complex, depending on the extent of land pressure and access to irrigation water. The various types of rotation are:

potato > wheat > maize (the later only in few locations)

potato > wheat > rice (the later only where there is enough water as rice requires considerable amount of water).

wheat > clover/maize/rice > potato > summer vegetables (onions and tomatoes) > wheat in villages where fields can be irrigated as many times as required.

wheat > alfalfa (for few years) > wheat

wheat > potato/clover > wheat

Of these rotations two dominate the farming system. In the valley, where irrigation water is abundant, the common rotation is wheat > potato > wheat or wheat > alfalfa/clover > wheat.

Crop rotation is not practiced in Kamdish. Farmers maintain that if they plant maize after wheat on the same land, worms may attack the corn stem and yields decline. To avoid this they practice continuous cropping on the same land; for example, maize > maize or wheat > wheat. In a traditional society associations and attributes are overwhelming, and this one seems to be a typical case.

4.4. Intercropping

Although mixed cropping may conflict with adopting agricultural innovations and maximising (individual) crop yields, it offers several well-known advantages: better use of land and labour, relieving the constraints of low levels of nitrogen, protection against soil erosion and diversification of risk. These advantages seem to be maximised by farmers in

Chak and Dai-Mirdad. Instead of growing wheat only, they allocate a portion of their land permanently to fruit – apple and apricots - every four or five years. The fruit trees are then intercropped with potato and wheat until the trees are 4 or 5 years old and form shades. As the return per jerib from the fruit trees is higher than from wheat, the farmer will earn more cash by selling the potatoes. For example, potato yield from one jerib of land intercropped with fruit trees can give up to 500 seers compared to 60-80 seers of wheat. This level of average yield can be expected for subsequent five years – that is, until the trees are fully-grown. Taking the prevailing commodity price as a guide we estimate that the economic benefits of intercropping fruit with potato are exceptionally high:

Wheat: 60 seers x Afs.77,000/seer = 4,620,000 Afs

Potato: 500 seers x Afs.20,000/seer = 10,000,000 Afs

Potato even when intercropped with fruit trees can give very high return per unit of land than wheat in it is pure stand or intercropped. Why, then, do farmers grow wheat? The answer is simple – if they grow potato every year, the yield is bound to decline in the absence of fertiliser. Pest and diseases may also affect yields. Moreover, because of agronomic reasons the land cannot be cropped with potato throughout the year; winter is ideal for wheat than for potato. Otherwise the land will have to be left fallow until April – the month for planting potatoes. Aware of this constraint, farmers attempt to maximise their return by planting both wheat and potatoes.

The farmer's return will further pickup after 4/5 years when the fruit trees begin to be harvested commercially. Assuming that the farmer has planted 80 apricots and 70 apple saplings per jerib (which is the usual practice in the province), the trees can give the farmer the highest possible return per unit land. Again, using the Kabul price as a rough guide, we estimate that the total output of 2,240 kg/jerib (assuming 28kg of yield per tree) can generate Rs. 22,400. This can be compared with Rs. 5,898 that can be obtained from wheat output per jerib. By the time the trees are 5 years old, the shades are likely to affect photosynthesis and cause a decrease in potato and wheat yield, but this is also the time to plant new fruit trees on the remaining portion of the land.

The farmer who allocates his one jerib into two fields – wheat only (sometimes rotated with alfalfa or clover) and fruit trees (intercropped with potatoes and wheat) – obtains high return per unit land compared to the farmer who grows wheat followed by potatoes on the same land. It is probable that population growth, followed by diminished access to cultivable land,

has induced farmers to intensively use their land and maximise return. Farmers in these two districts have adopted this double cropping strategy.

In Kamdish, various subsistence crops are usually cultivated, albeit in small plots. A more common practice, however, is to sow maize together with beans, though not on all of the land that is intended for maize. This practice does not seem logical for there will be competition between maize and beans for soil nutrients, especially at the growing stage. Maize is a heavier user of nutrients than beans and this can have a negative impact on growth and productivity. Moreover, the maize may not benefit from the nitrogen fixing potential of beans if sown together. But farmers are content with the practice even when maize yield is terribly low by Afghanistan standard.

Fruit trees in Kamdish are not intercropped as in Chak and Dai-Mirdad. Walnuts with their much wider shade than apple and apricot make the practice of intercropping impossible. Moreover, for a subsistence farmer who is risk averse, it would be costly to allocate even a portion of his plot for tree crop with a long period before harvested commercially. It may look rational to allocate land to food crops that meet subsistence requirements and plant some saplings on the sideline, but the lack of intensification also suggests that cultivable land is after all not so much a problem in the district.

4.5. The Management of Staples

4.5.1. Labour Use

Figure 4 depicts labour use by activity for maize and wheat per jerib. The data for Chak and Dai-Mirdad are average as there was no significant difference in farm practices between the districts. Both family and hired labour are summed and presented in man-hours.

In Kamdish, maize requires more land preparation compared to wheat. The general practice is to broadcast the maize seed and plough the fields to cover the seed. On the average it takes 9 manhour to prepare a one jerib maize land. Two thirds of the farmers rely on oxen for land preparation and seed covering. Farmers in Kamdish do not weed fields. In exceptional cases, fields are weeded to collect green fodder for animals. It is interesting to note that when asked what factors limit agricultural productivity a sizeable number of respondents reported

Part IV is about agricultural production. It covers cropping patterns, management systems and a detailed analysis of harvest yields. Part four also deals with marketing, food security and the various coping strategies pursued by farm households. This is followed by the analysis of the livestock sector in Part V. It shows changes in herd size and composition overtime. The section is also concerned with livestock productivity issues.

In Part VI health and health practices are addressed. Information is given on illness among children, immunisation status and mortality rates. There is also information on basic health issues involving water and sanitation.

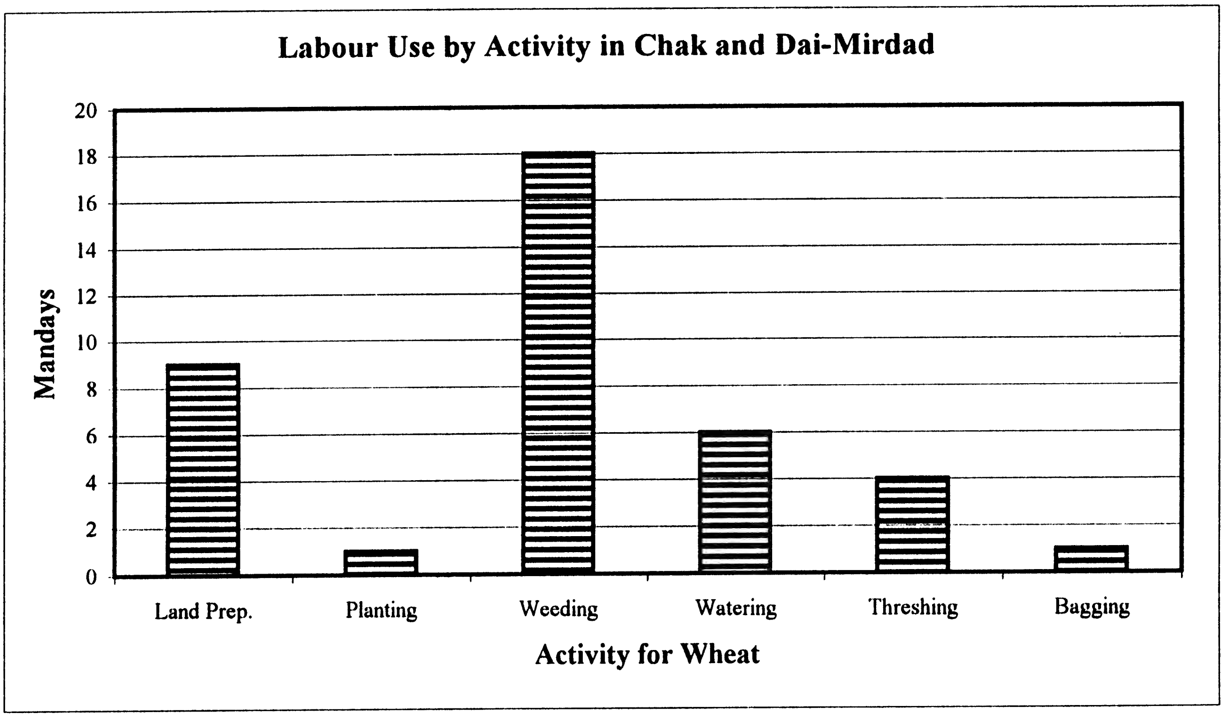
Part VII reverts to the community-level and discusses common property resource management. In particular, the section deals with grazing land and forest resource management and the various types of property rights.

Finally, in Part VIII we assess the viability of each district for Afghanaid Programme by applying the same criteria used for the reconnaissance survey. The report concludes with a recommendation.

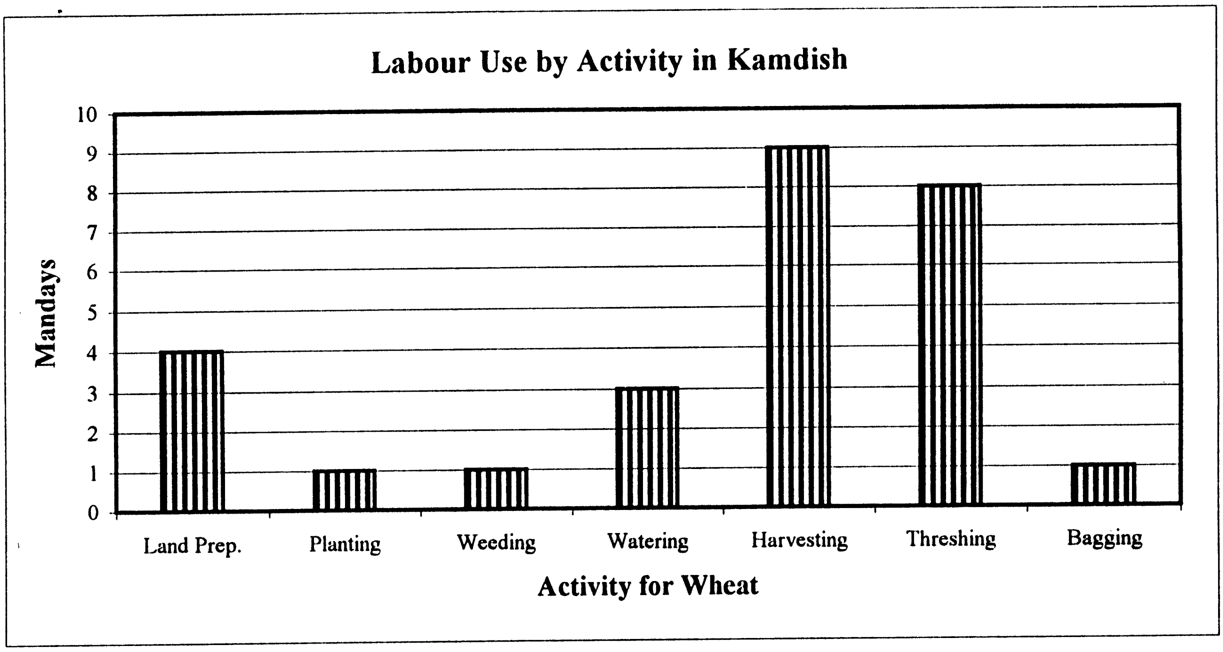
On completion of the study, we wish to express our appreciation to several organisations and individuals, located in Peshawar and Afghanistan, for their support and advice. Particular thanks go to Mr. Paul Clark, Country Director, CARE Afghanistan, Stuart Worsely, Asstt. Country Director and Asef Rahimi, Programme Manager, and to Dr. Yusuf Nuristani, Director, Afghan-German Basic Education (AG BAS-ED) for their co-operation. Mr. Sharif and Ebaddy, both from CARE, not only helped us complete the questionnaires in Chak and Dai-Mirdad but also led the group meetings. Mr Nur Mohammad of AG BAS-ED was our key team member in Kamdish. We have benefited from his knowledge of the area. We also wish to register our appreciation to Dr. K. Dawlaty, Chief Admin. Manager, NPO, for sharing with us his views about survey methodology. We would also like to thank Madera in Barikot and Kamdish for the support, advice and hospitality during the fieldwork. We hope this inter-agency co-operation will grow further for mutual benefit.

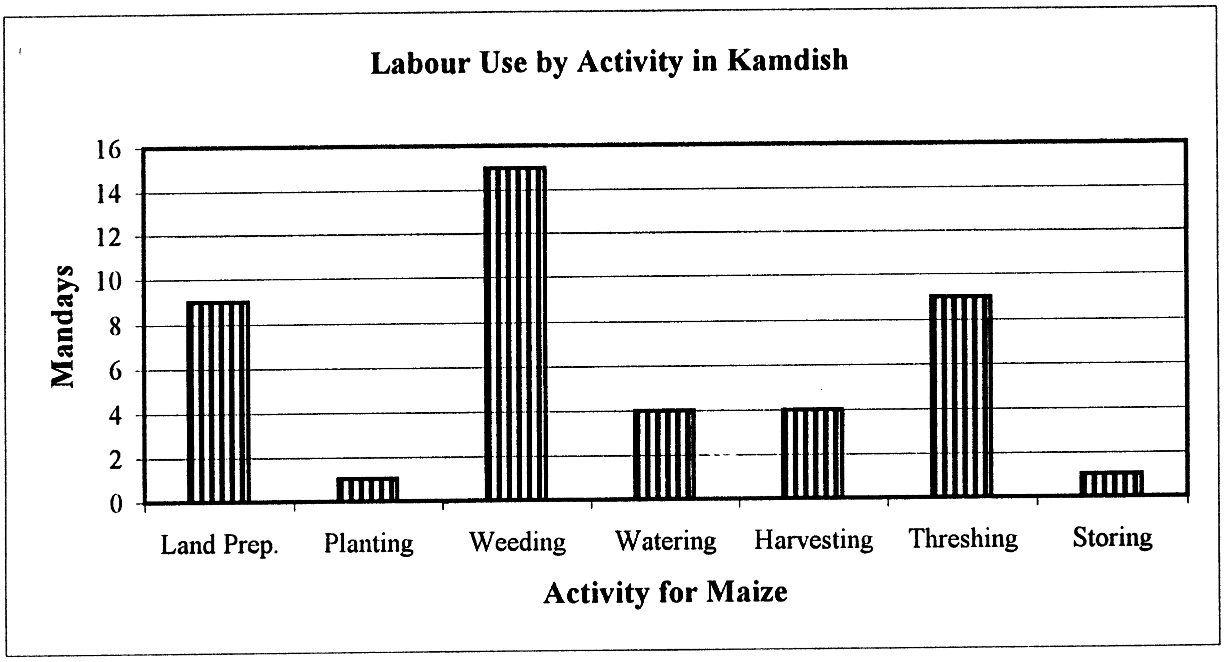
Figure 4. Labour Use by Activity

(i) Chak and Dai-Mirdad



(ii) Kamdish


Labour Use by Activity in Kamdish
Mandays
10
9
8
7
6
5
4
3
2
1
0
Land Prep.
Planting
Weeding
Watering
Harvesting
Threshing
Bagging
Activity for Wheat


Labour Use by Activity in Kamdish
Mandays
16
14
12
10
8
6
4
2
0
Land Prep.
Planting
Weeding
Watering
Harvesting
Threshing
Storing
Activity for Maize

weeds (see figure 9 for details). Weeding in Chak and Dai-Mirdad is a continuous activity until the harvesting time.

Harvesting and threshing are the two most important labour demanding activities, both for wheat and maize. Wheat takes twice more mandays to harvest than maize, and it is more labour demanding in Chak and Dai-Mirdad than in Kamdish. But labour mandays for threshing are also twice more in Chak and Dai-Mirdad than in Kamdish. Oxen are used to thresh the harvest. Some households in Chak and Dai-Mirdad pair ox with donkey to do the threshing; others use donkeys only. Bagging can take more than one manday if the fields are located far away from the homesteads.

The division of labour is such that women do the weeding in Kamdish. In some parts of the district, women were also seen engaged in clearing fields, assisting men in ploughing and in the construction of fences along the fields. Women do not play active role in field activities in Chak and Dai-Mirdad. Men do most of the farm work, assisted by young boys. Wage labour is not so common in the case-districts. Labour-short households enter into cooperative arrangements with other households.

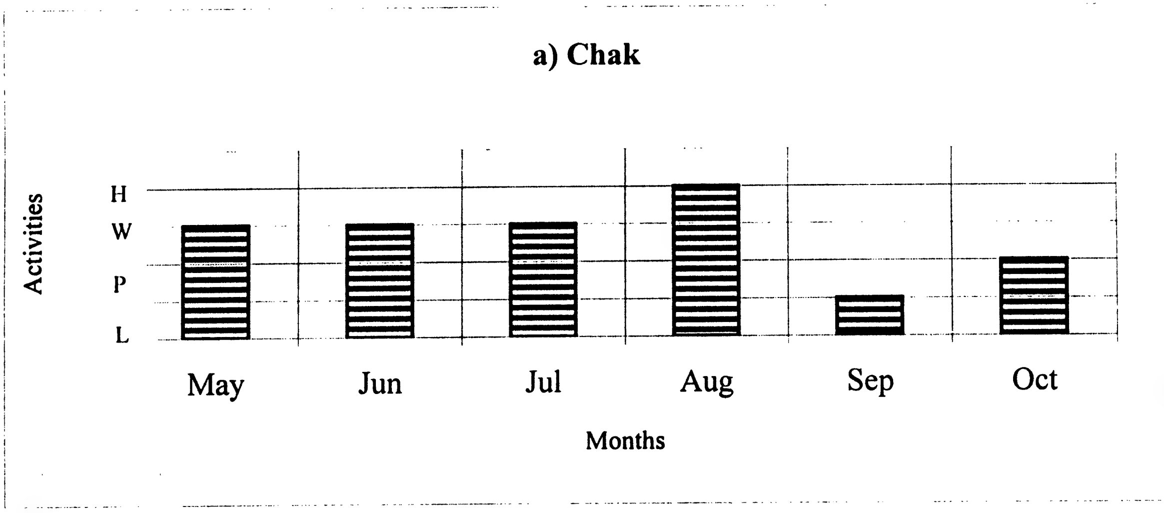
4.5.2. Crop Calendar

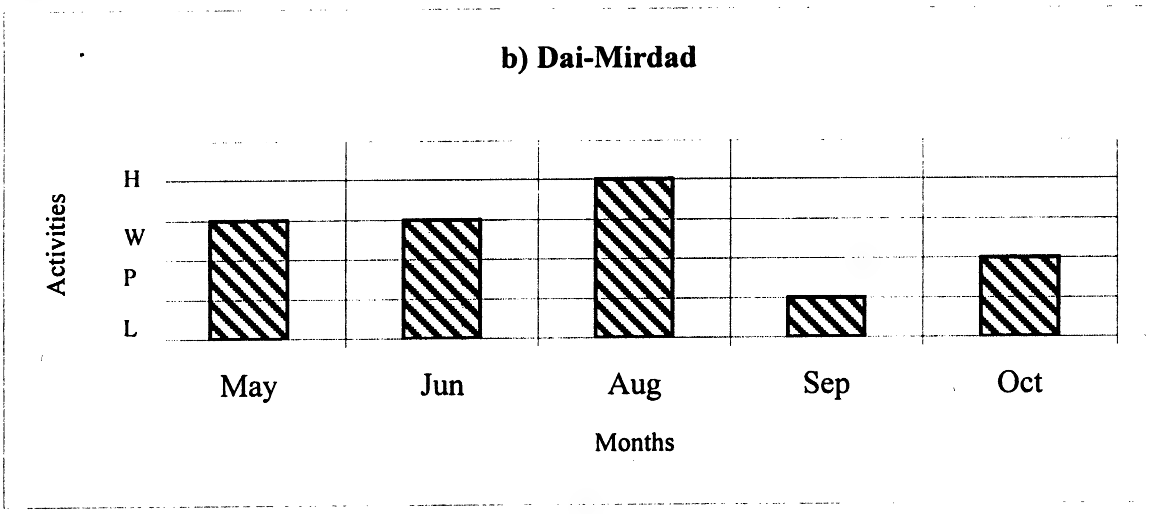
In all the three case-districts, wheat is planted in November. In Chak, 73% of the respondents said they planted wheat last season in November, against 60% in Dai-Mirdad and 80% in Kamdish. Weeding is done in May and June; harvesting is in August. Figure 5 depicts the cropping calendar. Maize in Kamdish is planted early, in April, immediately after land preparation. More than 80% of the respondents said they planted maize last season in April against 11% in June and 6% in May. The majority of the farmers, about 90%, consider April the optimum time for planting maize. Weeding is done in May and harvesting in September.

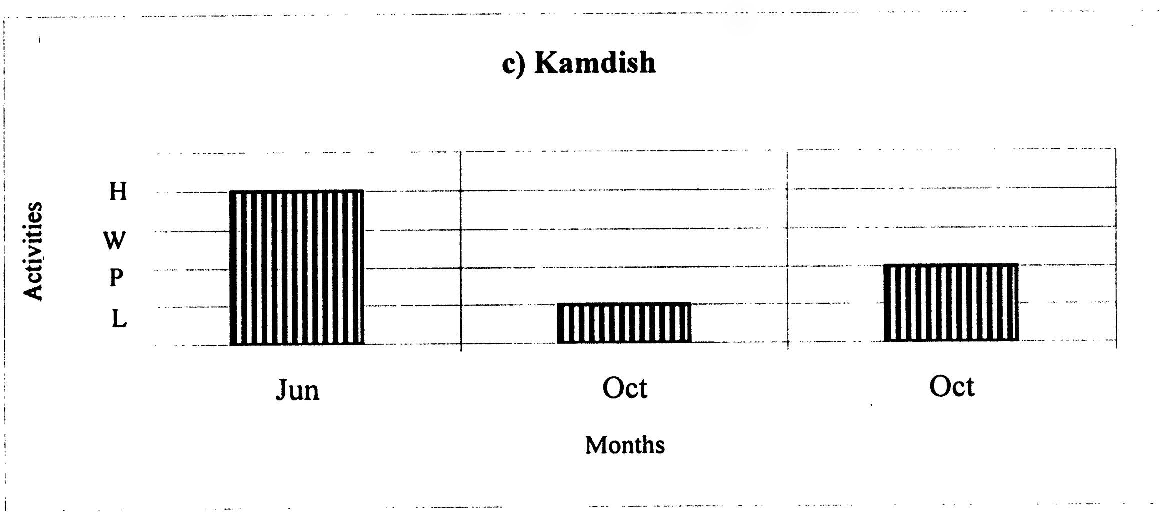
The potato calendar indicates that planting is done in May in Chak and Dai-Mirdad. In Kamdish, potatoes are planted and harvested earlier. Other crop calendars can be read from the figure.

Figure 5. Crop Calendar

(i) Wheat (winter) Calendar

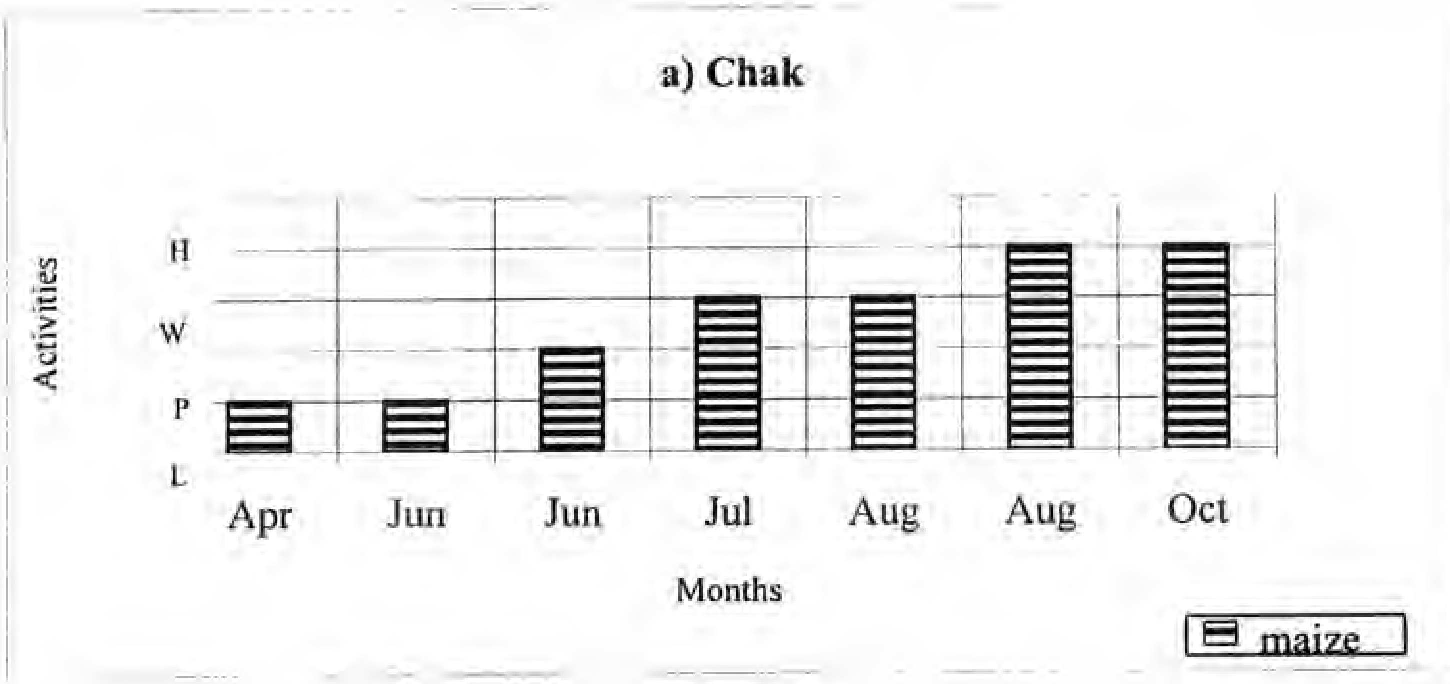


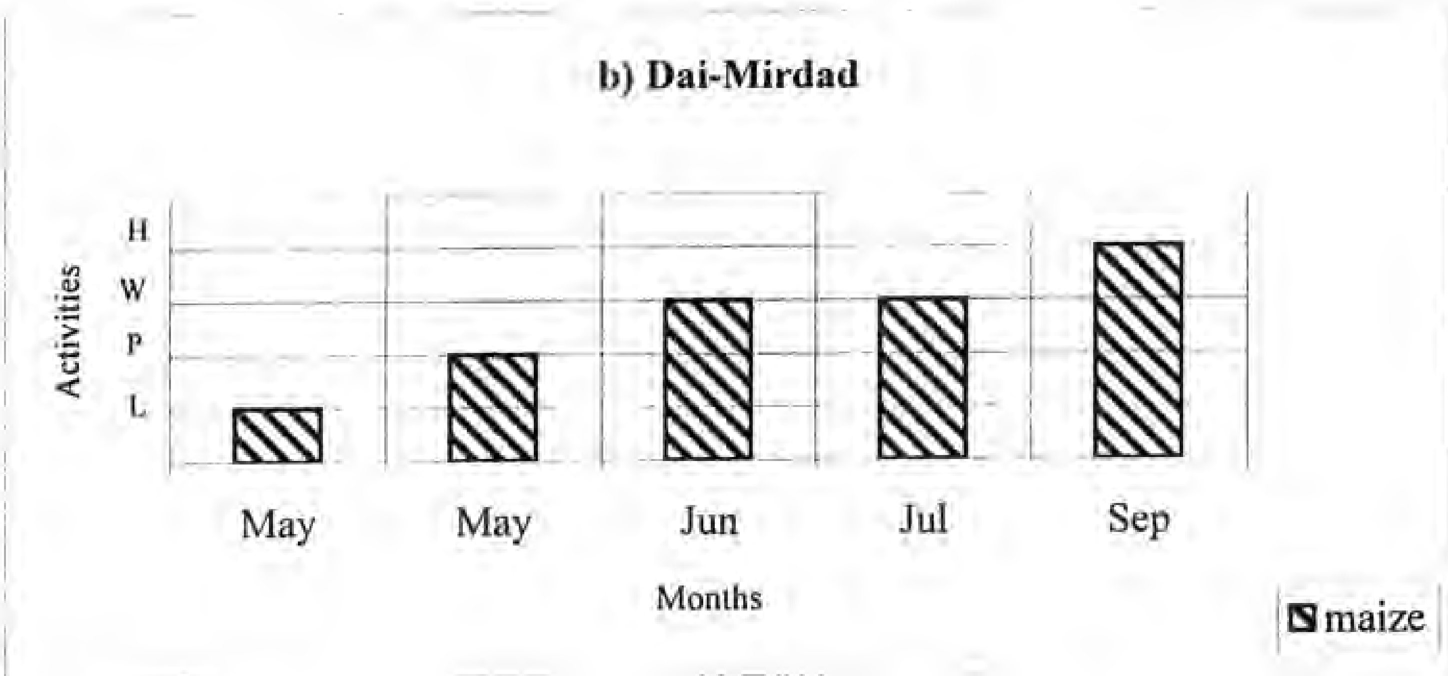


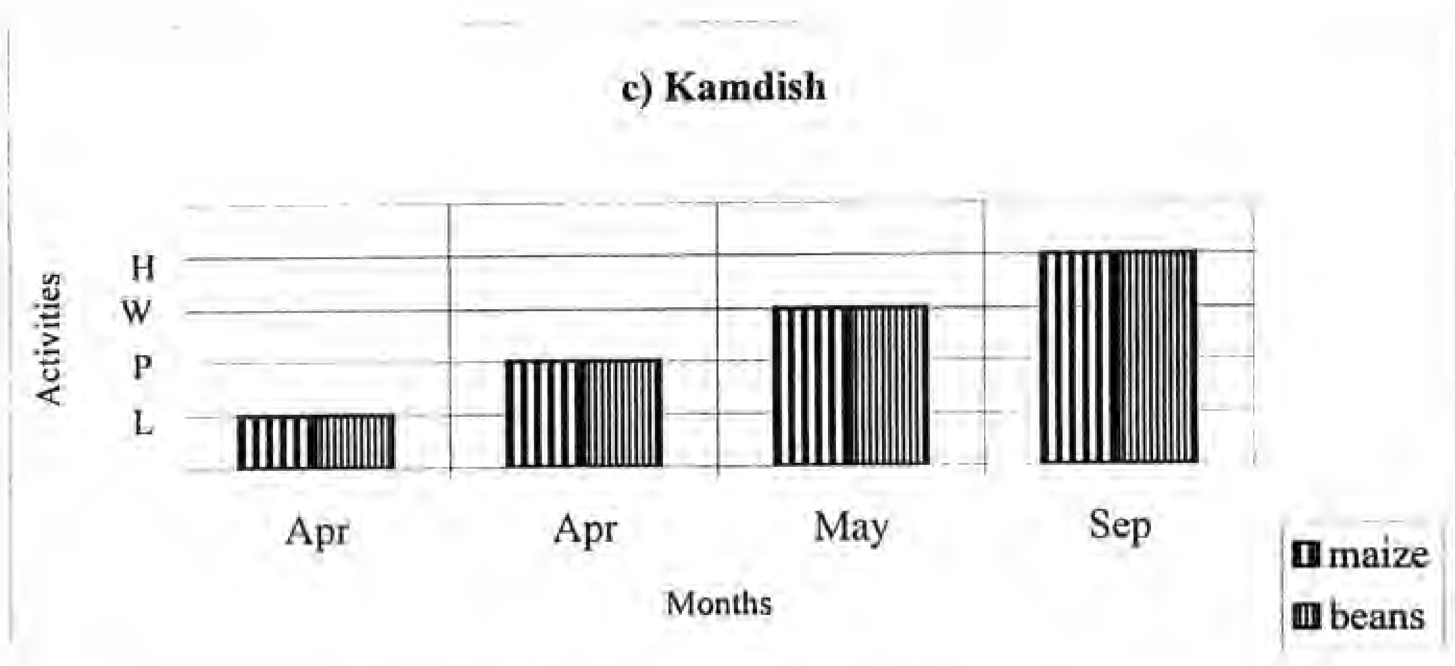


L= Land preparation, P=Planting, W= Weeding, H= Harvesting

(ii) Maize & Beans Calendar



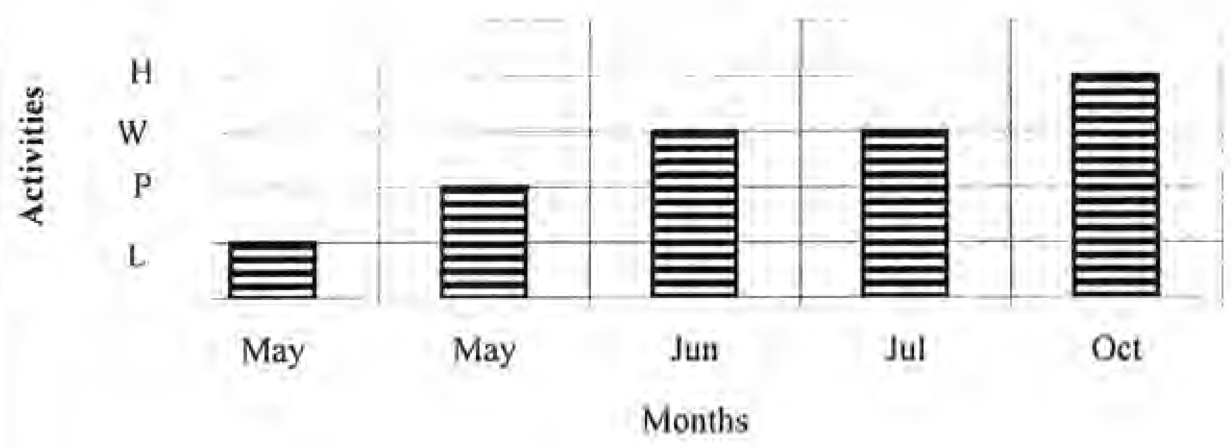




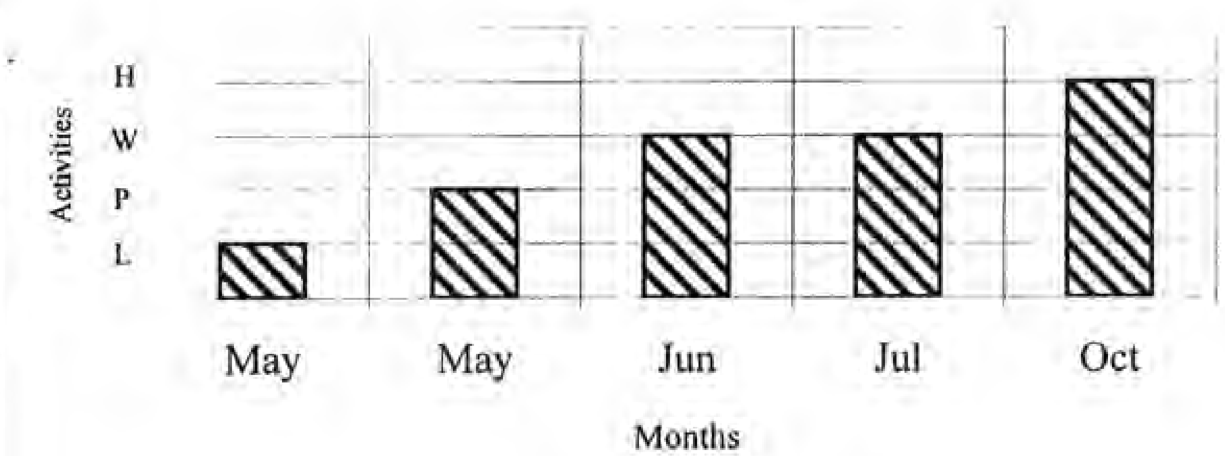
L= Land preparation, P=Planting, W= Weeding, H= Harvesting

(iii) Potato Calendar

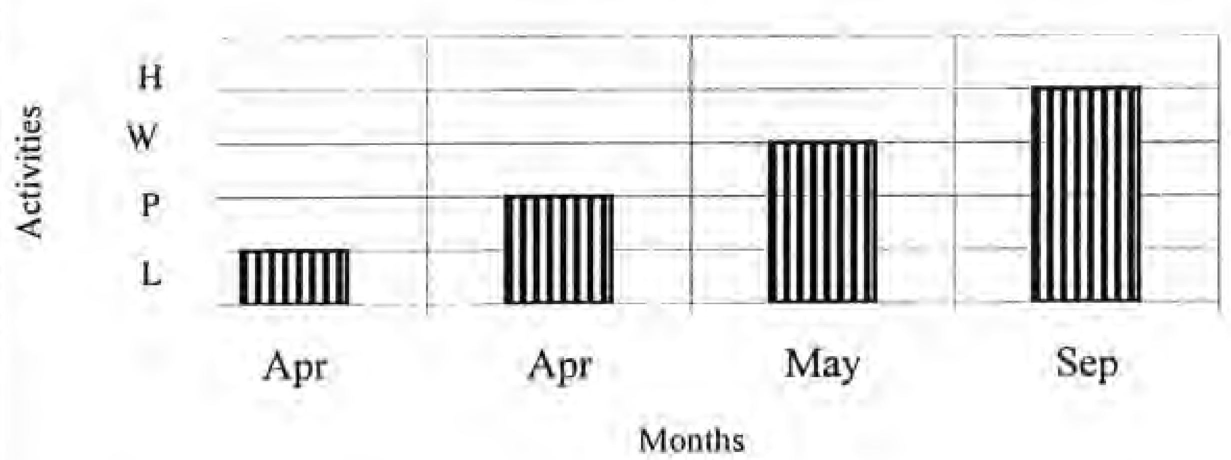
a) Chak



b) Dai-Mirdad

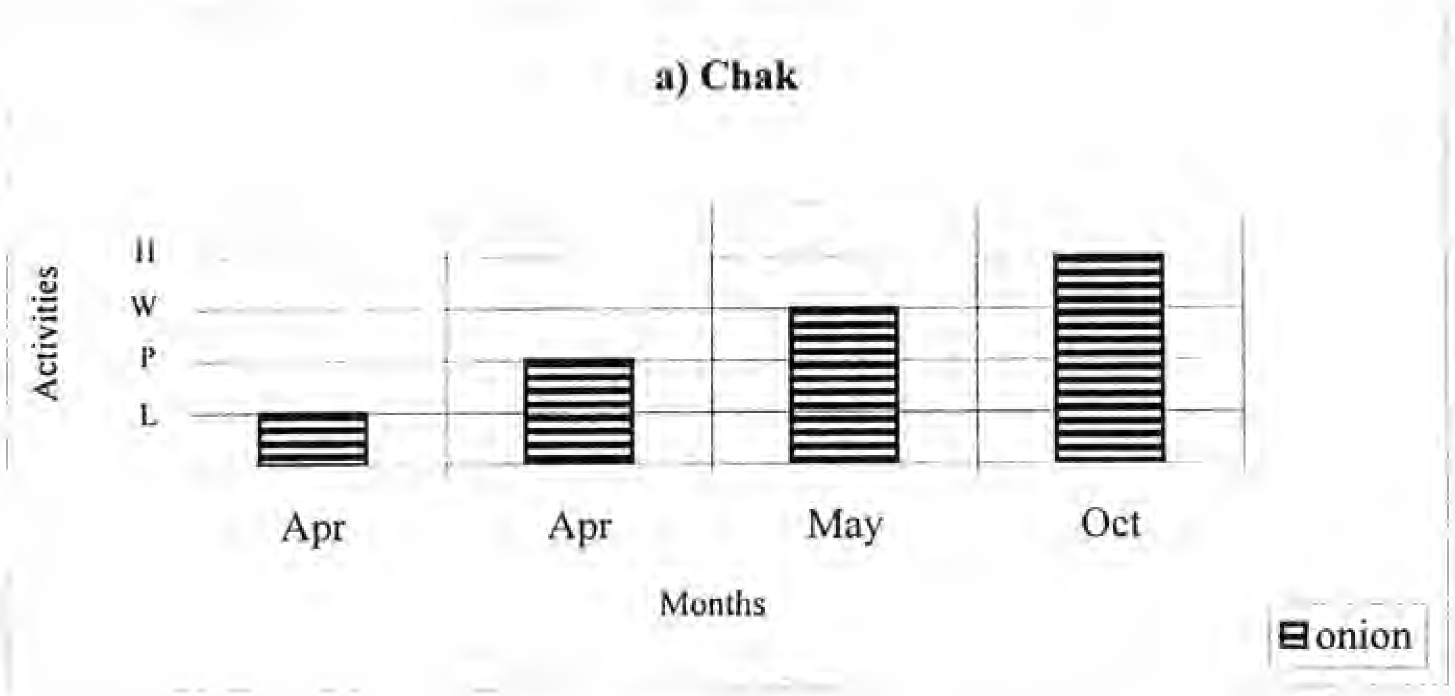


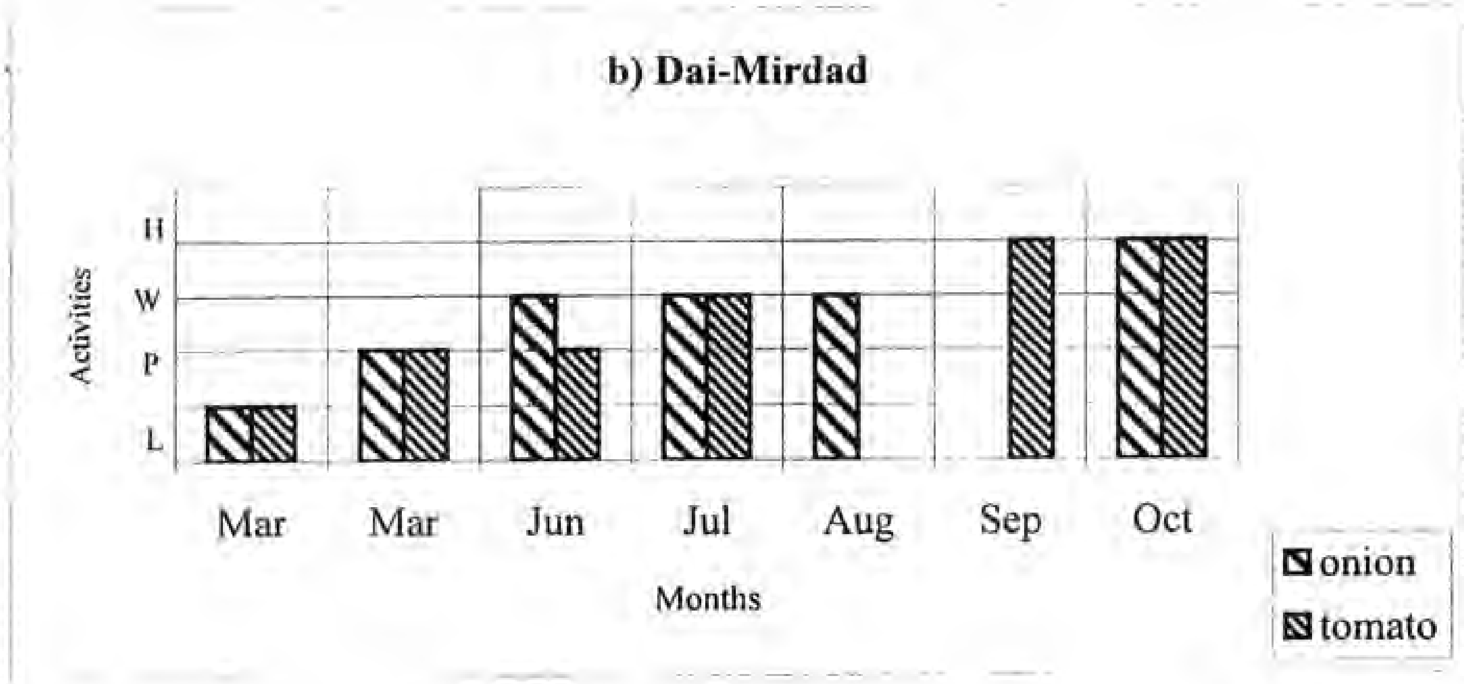
c) Kamdish

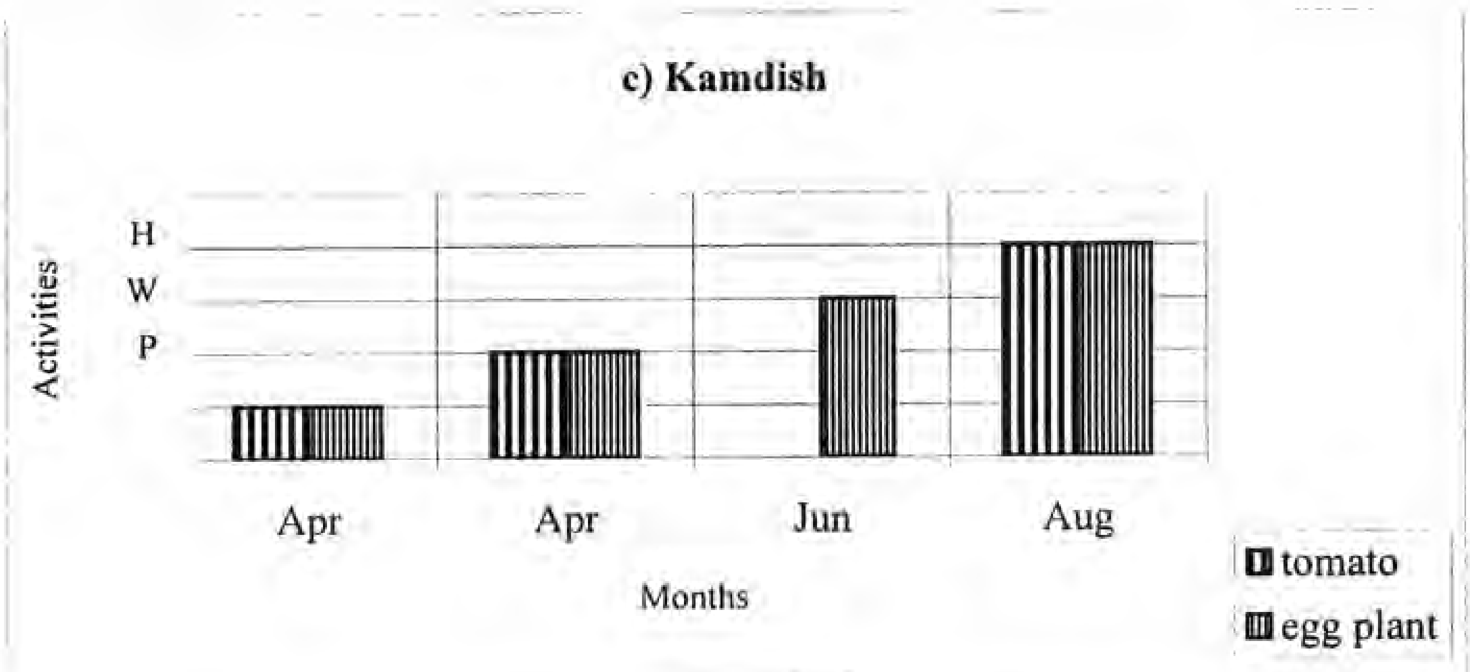


L= Land preparation, P=Planting, W= Weeding, H= Harvesting

(iv) Summer Vegetables Calendar

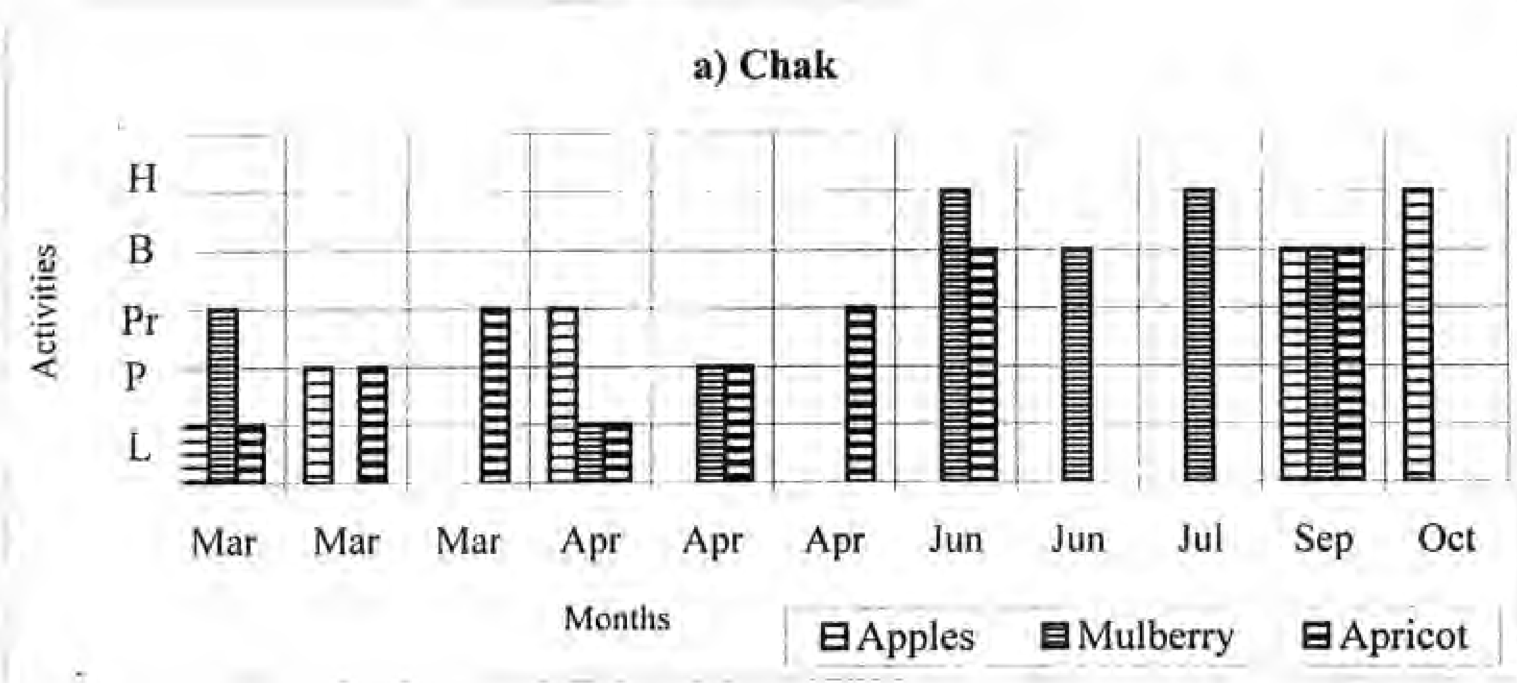


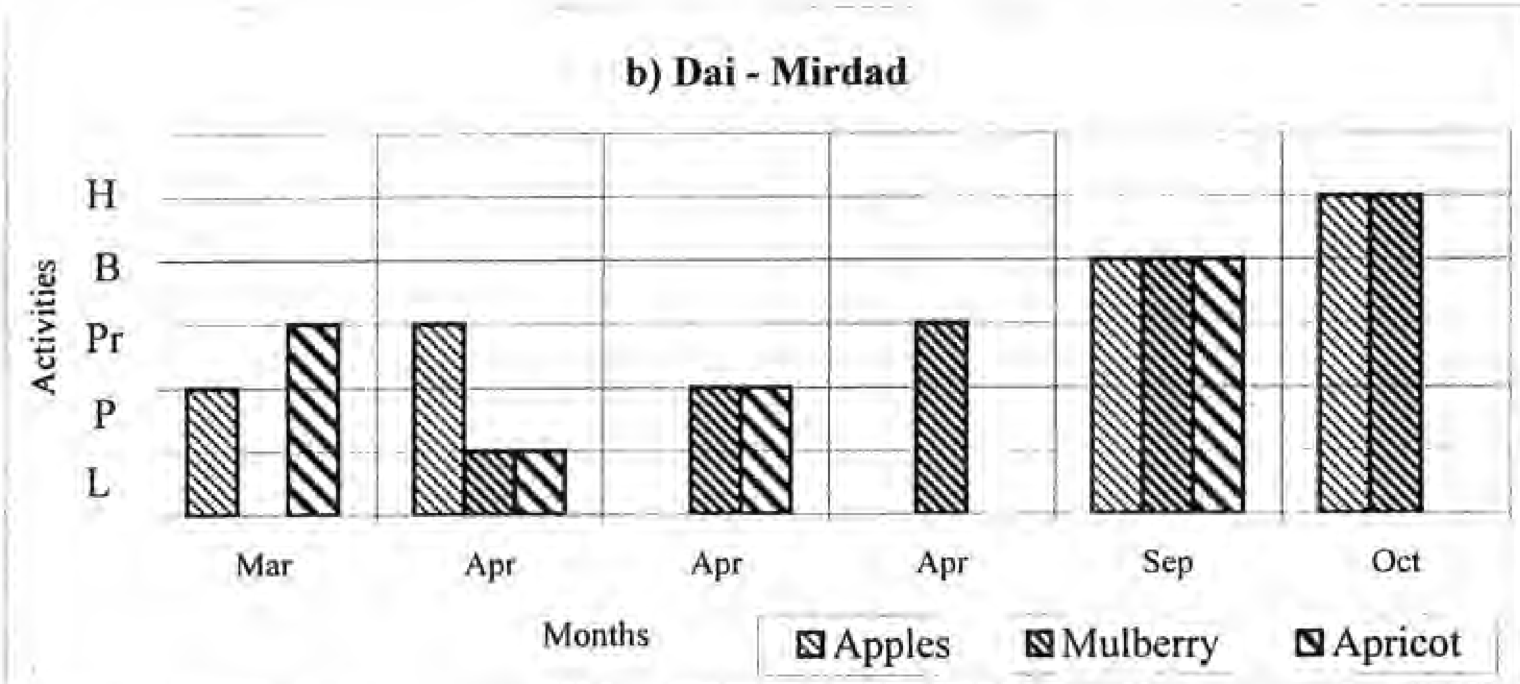


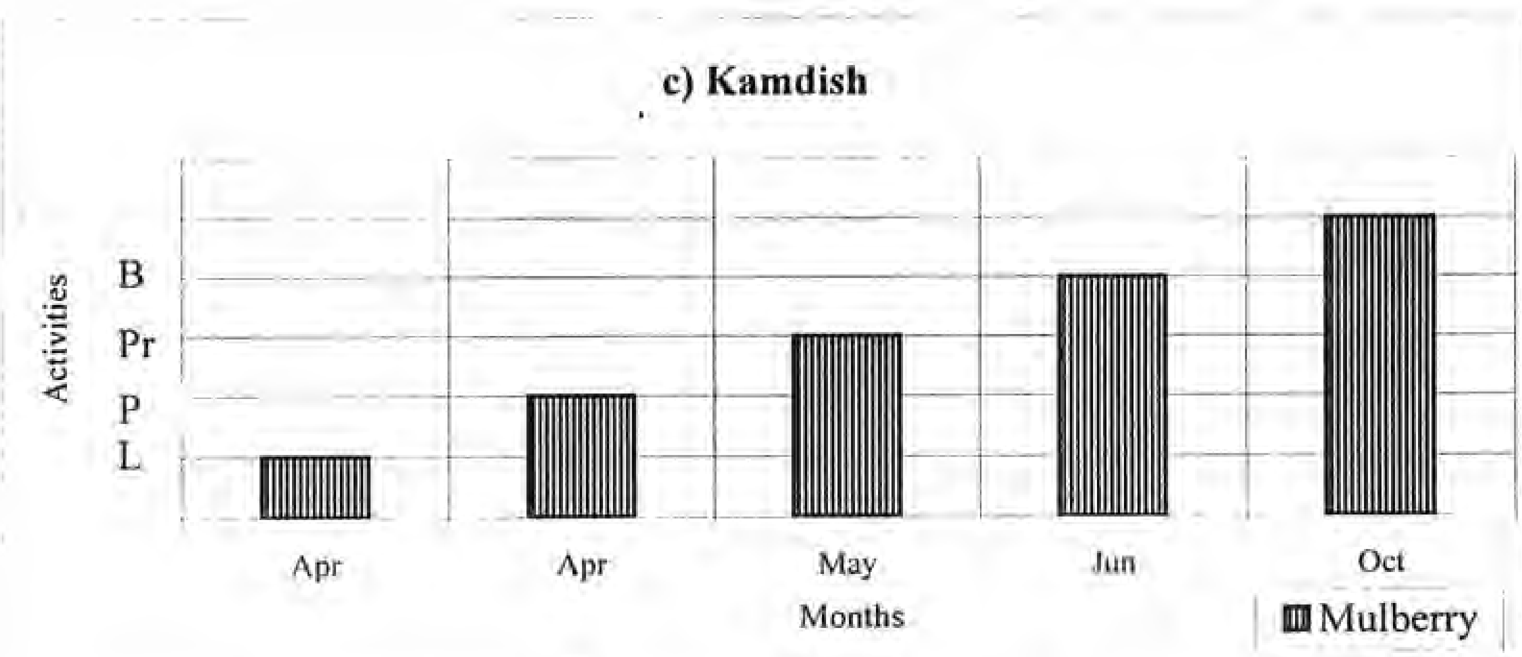


L= Land preparation, P=Planting, W= Weeding, H= Harvesting

(v) Fruit







L= Land preparation, P=Planting, Pr = Pruning, B= Budding, H= Harvesting

4.5.3. Seasonality of Labour Demand and Wages

An attempt was made to understand the seasonality of farm management practices using peak and slack labour demand months and the variations in wages during these months. Farmers were asked to indicate the busiest and the less busy months of the year. There are three periods of heavy activity – land preparation, planting and harvesting.

Variability in farm labour wage rates reflects in part this peak and slack seasonality in work (figure 6). Wages rise in the peak months. During other parts of the year little productive agricultural employment is available - hence wages fall sharply. Overall, however, demand for wage labour is low, as farms are small and can be cultivated by family labour.

4.5.4. Farm Equipment and Farm Power

None of the sampled households in the three districts own modern farm equipment, sprays, vehicles for farm use, tractors, ploughs and other implements. The majority of the households surveyed in the districts have adopted animal traction power to prepare the land and thresh the harvest. Weeding is done entirely by human labour. In Chak, according to the survey, 42% of the households owned just a bullock; 11% owned a pair, while another 42% had none at all. The figure for Dai-Mirdad is essentially the same: 53% owned one, 3% a pair and 44% none. This contrasts with Kamdish in which only 15% of the households had one bullock, 13% a pair and nearly two-third none at all.

Since land preparation is entirely done by bullocks, households had either to rent bullocks or seek help or enter into pairing arrangement. In Chak and Dai-Mirdad, renting is not particularly common. Instead, households help each other. Of particular significance is the institution of *purghu* for pairing. It is a contractual relationship between two equals who have a single bullock each and need pairing. Pairing begins a month earlier than the normal time in order to complete the land preparation work in time for planting.

In Kamdish, single plots are too small and most of the farms are located on steep slopes, yet animal traction is also widespread. Among those households who own an ox, the general practice is not to pair with other households, as in Chak and Dai-Mirdad, but to use human labour alongside the ox, more like a dummy. That is, young boys carry the yoke from one

Figure 6. Labour Peak and Slack Months and Wage Rates (Afs/day)

a) Chak

	Jan	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*
PEAK MONTHS				Peak months (11,000+(breakfast & lunch))								
SLACK MONTHS	Slack months 7,857+(breakfast & lunch)										Slack months 7,857+(breakfast & lunch)	

b) Dai-Mirdad

	Jan	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*
PEAK MONTHS				Peak months (50,000)								
SLACK MONTHS	Slack months (40,000)										Slack months (40,000)	

c) Kamdish

	Jan	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*
PEAK MONTHS			Peak months (70,000)									
SLACK MONTHS	No labour demand										No labour demand	

2. Methodology

2.1. Data Collection Methods

Data collection often involves a compromise between various methods. For the reconnaissance survey, a combination of area exploratory method with RRA was applied. The objective was to explore the viability of the provinces for Programme activities. Much essential information was obtained from this survey to form an opinion about each of the provinces. However, this methodology could not generate sufficient measurable baseline information. RRA as a methodology is inadequate by itself to identify representative sample villages and households and collect data. In addition, data gathered by RRA tend to involve substantial element of subjective interpretation and so lack the authority of data gathered by means of a survey. Considering these limitations, the methodology employed in this survey was to combine RRA and PRA with formal survey. This methodology satisfies the requirements of the survey.

2.2. Research Techniques from RRA and PRA

2.2.1. Preparatory Work

There was hardly any useful written material to review before commencing with the fieldwork. Some highly generalised and dated information was obtained from ACBAR, NPO and FAO. Maps were pieced together from GoAR, German-Afghan Education and FAO. In addition, background information was compiled from AAD staff.

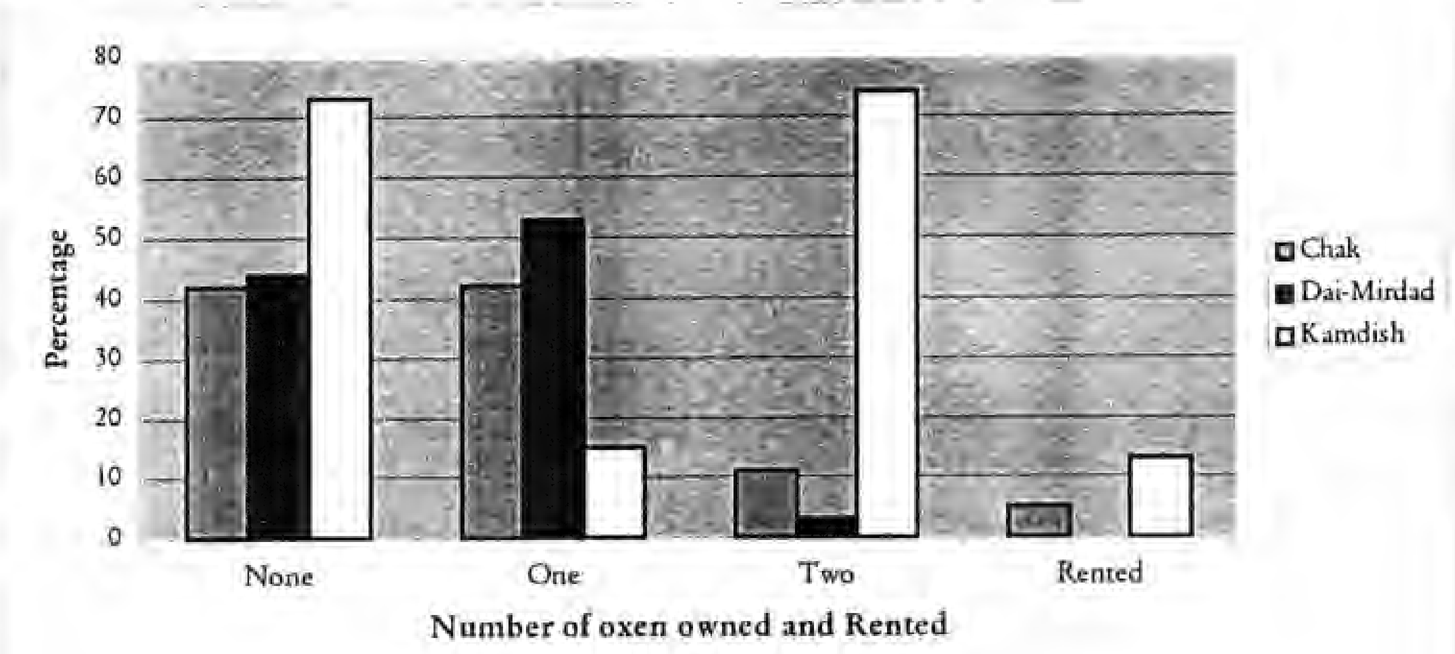
2.2.2. Field Techniques

Group discussions, direct observation, use of indicators, ranking, maps, key informants, checklists, schematic tools such crop calendars and labour-schedule constituted the main research tools. Group discussion is central to the methodology of RRA. Following this tradition a total of thirteen group meetings – one in each village – were held. Discussions were conducted in a central place, often in a mosque. Many of the participants were full-time and owner farmers, some able to read and write (figure 1). A "community level" questionnaire was implemented to the participants and general information was collected on

side in order to balance it and ensure the bullock pulls the plough and tills the soil deep. Renting bullocks is also very common. Of those households who did not have traction power, 73% have rented bullocks (figure 7) at an average rate of Afs. 75,000/day for a pair of bullock.

It is clear that the use of labour-saving technology is restricted to one or two bullocks. Even then not many households are owners of traction power – either they are not viable to smallholders to keep due to the demand for feed and/or people lack the ability to purchase bullocks. In this respect pairing is an important institution for it allows poor farm households to cultivate their land. By keeping a single ox rather than a pair, a household would be able to feed its ox adequately while also using its income on other farm expenses such as fertiliser and seed.

Figure 7. Percent of Households who have Access to Farm Power



4.5.5. Analysis of Harvest Results

4.5.5.1. Yield of Staples

Although the average yield of improved seed variety is higher than the average yield of local variety, only a small proportion – about 19.5% of the total wheat area in Chak and 12% in Dai-Mirdad - is planted with improved seed varieties. Kamdish farmers generally prefer to

grow local maize (white) for subsistence purposes because of its taste and its better processing qualities than improved yellow maize.

Table 21. Comparison of Low and High Yielding Farms

Yield Seer/jerib	Percent of Farms	Mean Yield Seer/Jerib	Seed Rate Kg/Jerib	Fertiliser Kg/Jerib
a) Chak: Wheat				
< 30.0	31.1	23.9	43.4	8.6
30-40	25.0	36.3	48.1	30.6
40-50	12.5	46.9	52.5	17.3
50-70	12.5	63.6	52.5	22.2
70-80	18.8	78.5	48.5	34.6
b) Dai-Mirdad: Wheat				
< 30.0	12.9	20.4	49.0	34.0
30-40	9.7	32.5	53.7	18.7
40-50	9.7	45.2	51.3	47.8
50-70	25.8	57.6	49.1	43.1
70-80	29.0	79.3	43.6	21.9
>80	12.9	101.9	52.5	70.8
a) Kamdish: Wheat				
< 30.0	50.0	23.1	25.7	31.2
30-40	8.3	41.4	28.0	0.0
40-50	16.7	43.2	24.5	39.0
50-70	16.7	67.7	31.5	75.0
7> 80	8.3	98.0	28.0	50.0
Maize				
< 30.0	12.1	26.3	18.9	31.3
30-40	12.1	37.1	20.1	35.8
40-50	12.1	47.8	24.5	27.9
50-70	27.3	65.4	26.0	41.4
70-80	6.1	80.0	28.0	62.5
>80	30.3	105.0	27.4	49.0

Note: seed is local variety

Wheat yield in Dai-Mirdad ranged from 20 to 100 seers/jerib (table 21), but over 50% of the farms have achieved less than 60 seers/jerib. In Chak, 50% of the farms fell into the relatively narrow range of 25-40 seers/jerib. In Kamdish, about 50% of the farms obtained an average of 23 seers/jerib. For maize, nearly a third of the farms have obtained over 100 seers/jerib, but 36% of the farms obtained less than 50 seers/jerib.

The local wheat seed variety in Chak accounts for 81.9% of the total seed planted last season against 87.6% in Dai-Mirdad. Virtually all the sampled households have planted this variety last season as opposed to 19.4% who planted improved varieties. The corresponding figure for Dai-Mirdad is 13.9%. The average yield of 45 seers/jerib for local variety and 53 seers/jerib for improved variety (one seer = 7 kg) of wheat in Chak is below the national average of 60 seers/jerib estimated by FAO. However, 60 seers/jerib obtained from local variety in Dai-Mirdad is comparable with the average for Afghanistan. This may be due to the impact of fertiliser. In table 22 we see that relatively more farmers apply fertiliser in Dai-Mirdad than in Chak and Kamdish. The proportion they apply is also high relative to Chak and Dai-Mirdad.

The average yield obtained from local variety is 80 seers/jerib, and exceeds the average of 70 seers/jerib for Afghanistan. The improved variety does not fare that badly either. There is a significant yield difference between local and improved varieties. The variation between varieties, as measured by the coefficient of variation, is high for both crops in all the districts. If fertiliser were to be applied on improved varieties at a recommended rate, yields of both maize and wheat would increase substantially.

Table 22. Mean Grain Yield, kg/jerib (coefficient of variation in parenthesis)

		Improved	Local
Wheat:	Chak	367.7 (33.7)	315.7 (46.4)
	Dai-Mirdad	345.8 (40.6)	422.2 (43.7)
	Kamdish	n.g. (--)	289.3 (59.9)
Maize	Kamdish	426.8 (47.2)	561.8 (63.6)

n.g. means not grown

4.5.5.2 Fertiliser Application

It can be observed (table 23) that there is a clear difference between the districts and between crop varieties in the proportion as well as the type of fertiliser applied. Relative to the tow districts, farmers in Kamdish use a low dosage of fertiliser. Few farmers apply fertiliser on improved seed varieties; half of the farmers in Chak and two-third in Dai-Mirdad apply fertiliser on local varieties. Among those farmers who applied fertiliser, nearly a third in Chak and twice as many in Dai-Mirdad applied both urea and DAP.

In Kamdish, farmers do not apply DAP at all. Urea is applied to both wheat and maize. Whilst farmers in Chak and Dai-Mirdad apply both urea and DAP on improved seed varieties of wheat, their counterparts in Kamdish apply urea only. Moreover, given the high preference farmers attach to maize as a food crop, much of the fertiliser in Kamdish is applied to this crop.

Table 23. Wheat and Maize Fertiliser Application (percentage of those applying)

	Chak	Dai-Mirdad	Kamdish	
	Wheat	Wheat	Wheat	Maize
Applying DAP only	36.8	71.9	n.a.	n.a.
Applying Urea only	52.6	84.4	31.7	90.0
Applying both	31.6	71.9	n.a.	n.a.
Applying on improved variety	8.3	15.6	n.a.	21.9
Applying on local variety	52.8	71.4	26.8	75.6
Average dose of Urea & DAP (kg/jerib):				
on improved variety	45.3	53.1	n.a.	36.6
on local variety	36.6	46.1	45.5	41.8

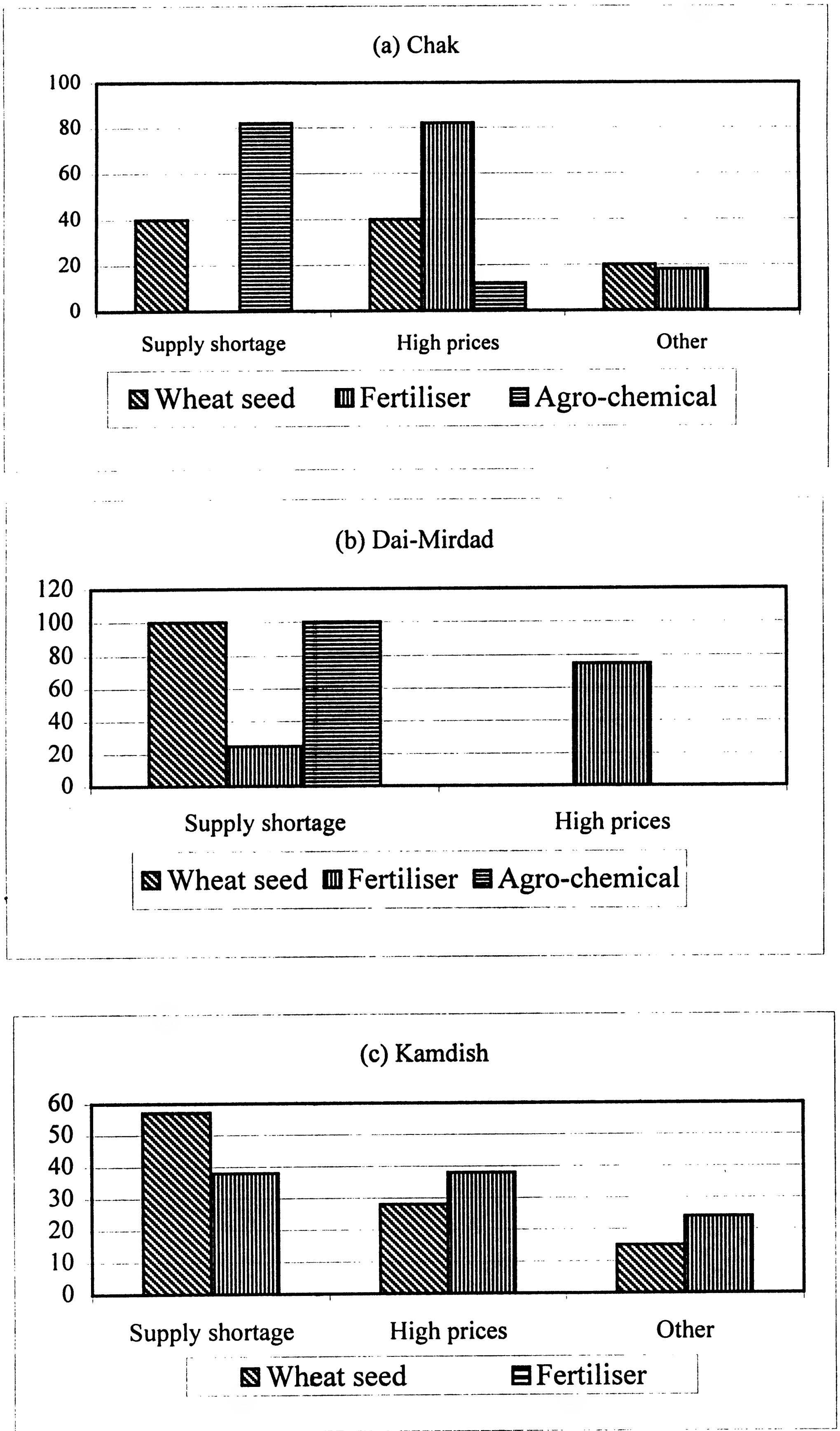
. n.a. means not applied

A number of factors can affect productivity: irrigation, pests, diseases, land preparation practices, and the like. However, given the relative homogeneity in the agro-climatic systems in each of the districts, differences in yield between farms can also be related to management practices. The main differences are related to seed rate and fertiliser doses. The high yielding farms have applied relatively more fertiliser and seed rate per jerib. Seed rates are fairly the same for Chak and Dai-Mirdad, but fertiliser doses differ. The maximum mean yield obtained was in Dai-Mirdad, and the fertiliser rate there was close to that recommended by FAO (75 kg/jerib). Nearly all of the farms that have obtained low yields have applied low doses of fertiliser, and this is particularly the case in Chak where all of the farms have applied well below the recommended rate.

Fertiliser application on maize in Kamdish also shows the same association with yields; a higher dose - approximating a bag of urea and DAP and a seed rate of 4 seers/jerib - can give quite high yield per unit of land.

It would appear that the most effective way to raise yields – especially in the short-term – is to use chemical fertiliser. Land productivity could also be increased by adopting improved farm practices and high-yielding seed varieties that are ecologically and culturally adaptable.

Figure 8. Factors Constraining the Use of Inputs



Note: "Other" for Chak refers to bad quality and non-availability; "other" for Kamdish refers to lack of transportation

However, supply and distribution constraints inhibit the adoption of the inputs. The survey revealed that a high proportion of the respondents consider the system of supply and distribution in the districts inefficient. Besides this, demand-related constraints (e.g. low purchasing power of most farm households) inhibit the adoption of such land augmenting technology (figure 8). As a result, we may conclude that land and labour productivity in the case districts is far below its potential.

4.5.5.3. Profitability Analysis

Enterprise budgets were estimated for wheat and potato (Chak and Dai-Mirdad) and maize (Kamdish). The budget applies to the "average" farmer who cultivates his own land, uses fertiliser but also hires labour and traction power for ploughing and harvesting tasks. In general, there is no significant difference in resource inputs between the crops - number of ploughing, thresher and labour cost, seed rates, and fertiliser. Thus, in the budget analysis, the mean values of the inputs and outputs of the sample households are used. Mean margins are also computed from the gross returns, as reported by the sample households. It has not been possible to estimate the opportunity cost on capital.

Table 24. Production Costs and Returns for Wheat, Potato and Maize

	Wheat		Potato		Maize	
	Qty per jerib	Rupees per jerib	Qty per jerib	Rupees per jerib	Qty per jerib	Rupees per jerib
Inputs:						
seed (kg)[1]	22	324	140	560	28	280
fertiliser:						
DAP (kg)	28.3}	597.7	29.7}	1348.9	0.0	0.0
Urea (kg)	24.2}		55.5}		45.2	555.4
Traction cost	2 days	160	2 days	160	2 days	232
Threshing:						
bullock	3 days	240			2 days	232
labour	3 days	309	3 days	309	2 days	206
Total variable cost/jerib		1630.7		2377.9		1273.4
Gross return[2]	422.2kg	7189.8	1278.2kg	7635.2	316.9kg	3910.5
		(6225.5)		(5140.2)		(3169.0)
Net return		5559.1		5257.3		2637.1
		(4594.8)		(2762.3)		(1895.6)

[1] local seed variety; [2] the gross margins in the parentheses are derived by multiplying output with the mean prices. They can be compared with the sample mean values which farmers claimed to have obtained last crop season.

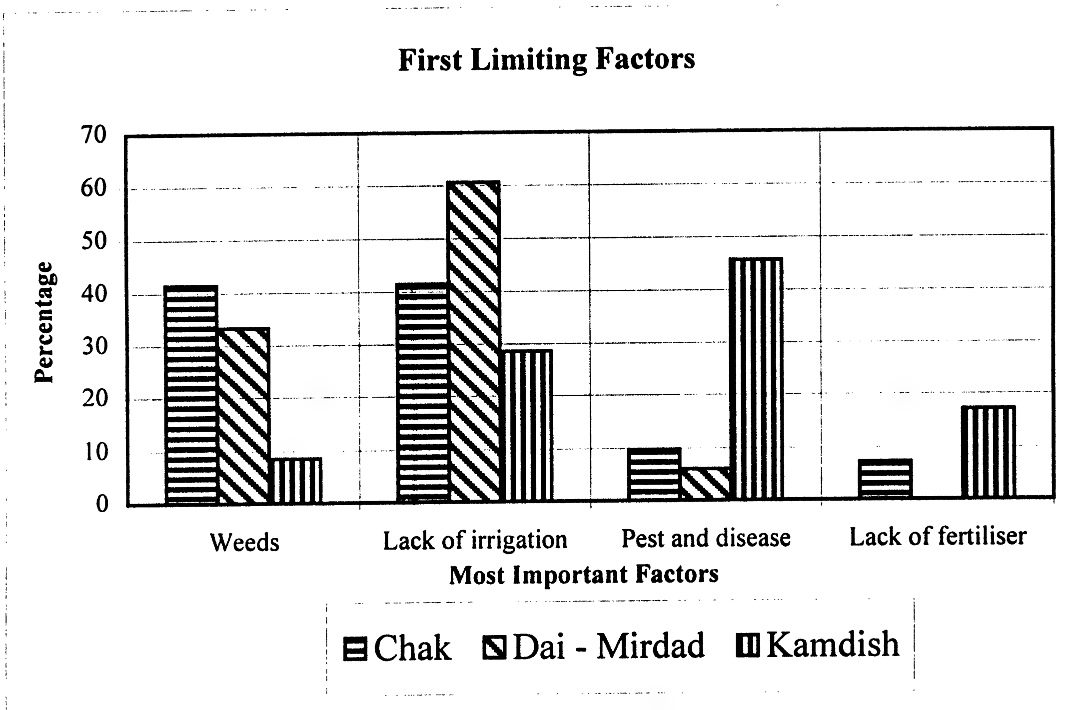
Table 24, therefore, gives an overview, rather than a complete, budget analysis for the average farmer. It is clear that maize is relatively a low input crop. Farmers in Kamdish apply only urea. Because of this the variable cost per jerib of maize is considerably lower than for wheat and maize. However, the gross margin for maize is lower than for wheat. This is because wheat fetches higher price per kilogram than maize. Gross return for potato is higher than for maize. Hence, net return to the farmer is substantially higher from potato.

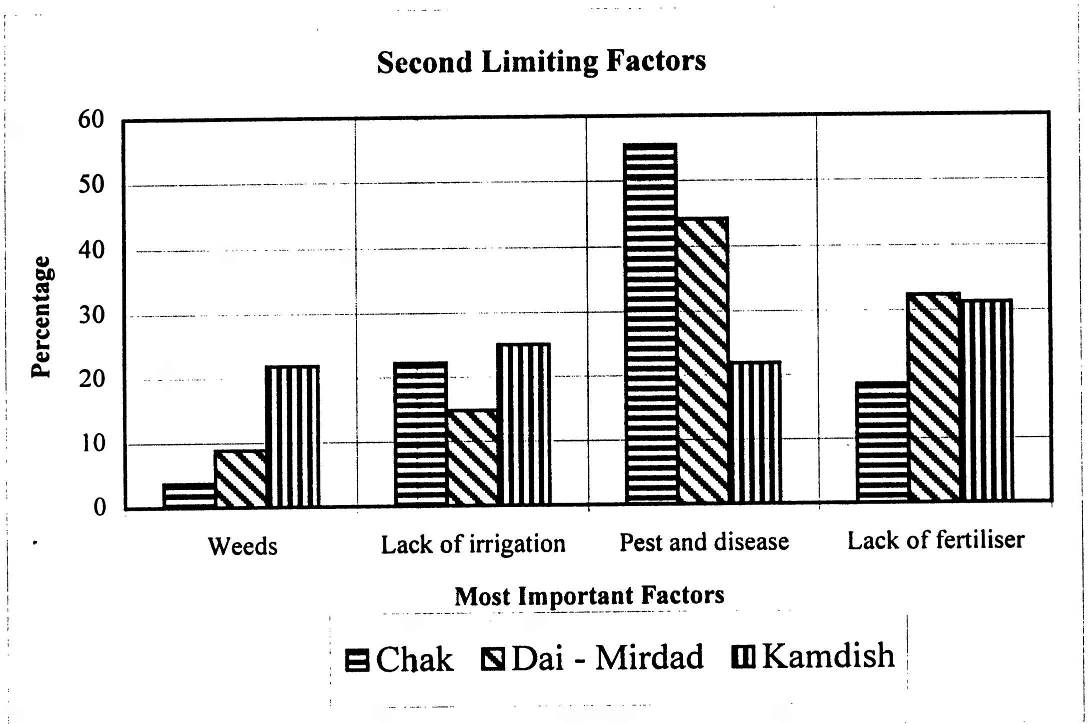
4.5.5.6 System Constraints

Other constraints affecting crop yields are weeds, diseases and pests. Farmers were asked to rank the factors that limit crop productivity. Their response is ranked and presented in figure 9. In Kamdish maize-economy, pest and disease coupled with lack of fertiliser were identified as the major factors limiting agricultural productivity. Lack of irrigation water stands out as the most important factor limiting yield in Chak and Dai-Mirdad. The extent to which weeds constrain agricultural practices is also brought out by the survey in which over 20% of the responses in Chak and Kamdish regard this as their third important yield limiting factor. This seems to contradict the farming practice pursued by farmers. The survey has established that farmers do not weed crops. Family members with a gender division of labor perform agricultural activities, such that male and female labour is hardly interchangeable. The traditional gender division of labour in agriculture makes men responsible primarily for preparing the fields, sowing and watering, while women do all the weeding. Other activities, like harvesting, threshing and bagging are to some extent shared between the sexes. As far as livestock goes, men are responsible for tending animals, for transhumance grazing whereas women are charged with the task of milking. This distinction is clearly visible in all the three districts, irrespective of the position of the household in the community. This suggests that women alone cannot complete the task before weeds had already damaged crops. Therefore, the sexual division of work that assigns weeding to females alone causes an artificial labour shortage in the household and, hence, contributes to poor crop productivity.

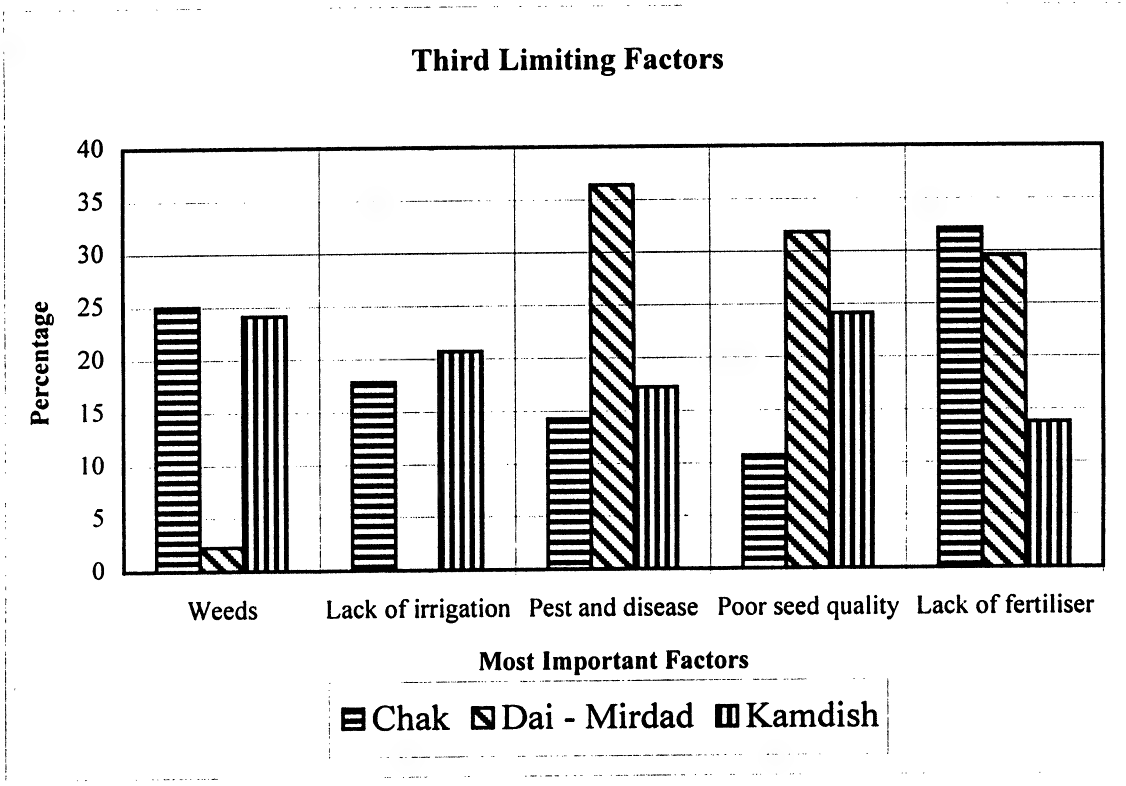
Figure 9. Factors Affecting Crop Yield

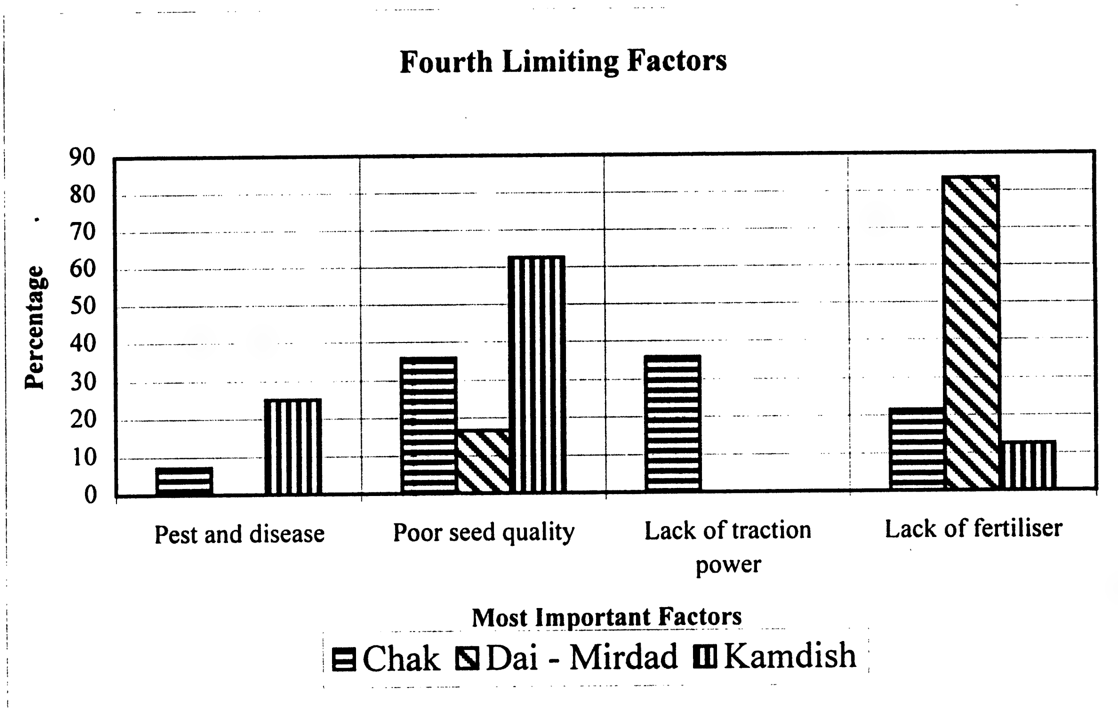
(i) First and Second Limiting factors





(ii) Third and Fourth Limiting Factors





4.5.5.7. Agronomic Constraints

These constraints are external to the farming system. Farmers were asked to rank the effects of climatic conditions on the staples they grow. From the summary data it is clear that heavy snow as well as rainfall, both too much and late, are dominant among farmers' risks and constraints. The incidence of these risks suggests care in choosing technologies for dissemination. For example, varieties should have good resistance to rot. The responses are ranked and also presented in graphs (figure 10).

Summary statistics for agronomic constraints (percentage)

	Main Effect	Chak	Dai-Mirdad	Kamdish
Heavy snow:	sown seeds rot	95.4	85.7	46.7
Early rain:	good	90.3	74.3	70.0
Later rain:	pest and disease	74.4	76.9	14.3
	poor germination	12.8	---	26.2
	poor grain filling	12.8	23.1	26.2
Heavy rain:	good	32.0	33.3	44.2
	pest and disease	40.0	8.3	4.7

4.5.5.8. Marketing of Agricultural Products

Farmers in Chak and Dai-Mirdad did not sale any surplus foodgrain. The main source of cash income was potato (table 25). Surplus potatoes are taken to major markets like Ghazni and Kabul or sold to visiting traders. The marketed surplus in Chak increases with the increase in farm size, but does not fully indicate this pattern for the other two districts. The middle class farmers seem to have sold proportionally less of their output compared to small and large farm size classes. Overall, about 40% of the total output from each district was sold. Much of the surplus was sold locally as it was not economical to take small surpluses to bigger markets. The survey also revealed that many farmers did not sale at all: 33 in Chak; 24 in

Table 25. Marketed Surplus as a Proportion of Total Output[1]

	≤ 3	3.1-6	6.1-9	> 9.1	Total
Potato:					
Chak	480 (58.3)	1360 (51.2)	1450 (6.9)	2220 (57.7)	5510 (42.8)
Dai-Mirdad	522.7 (49.6)	1757.4 (10.2)	580 (65.5)	729 (80.4)	3589.1 (39.1)
Maize:					
Kamdish	1080 (0.0)	2496 (0.6)	865 (0.8)	1340 (10.4)	5781 (2.8)

[1] figures in parenthesis are percentages of the total output (in seers) for each farm class after deducting the amount given to landlords.

Figure 1. Occupational Pattern of Focus Group Participants (percentage)

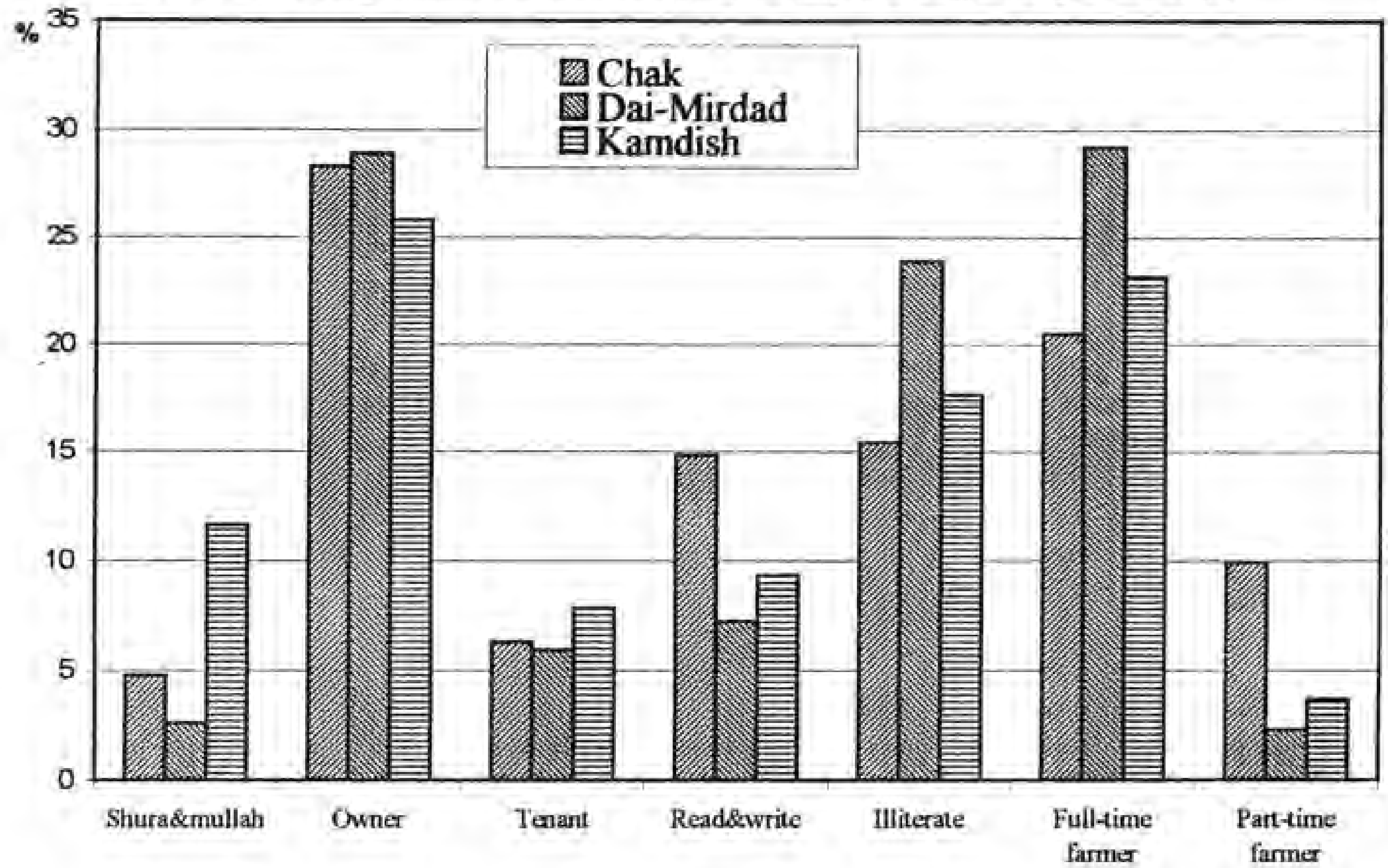


Figure 2. The Distribution of Sample Households by Tenure

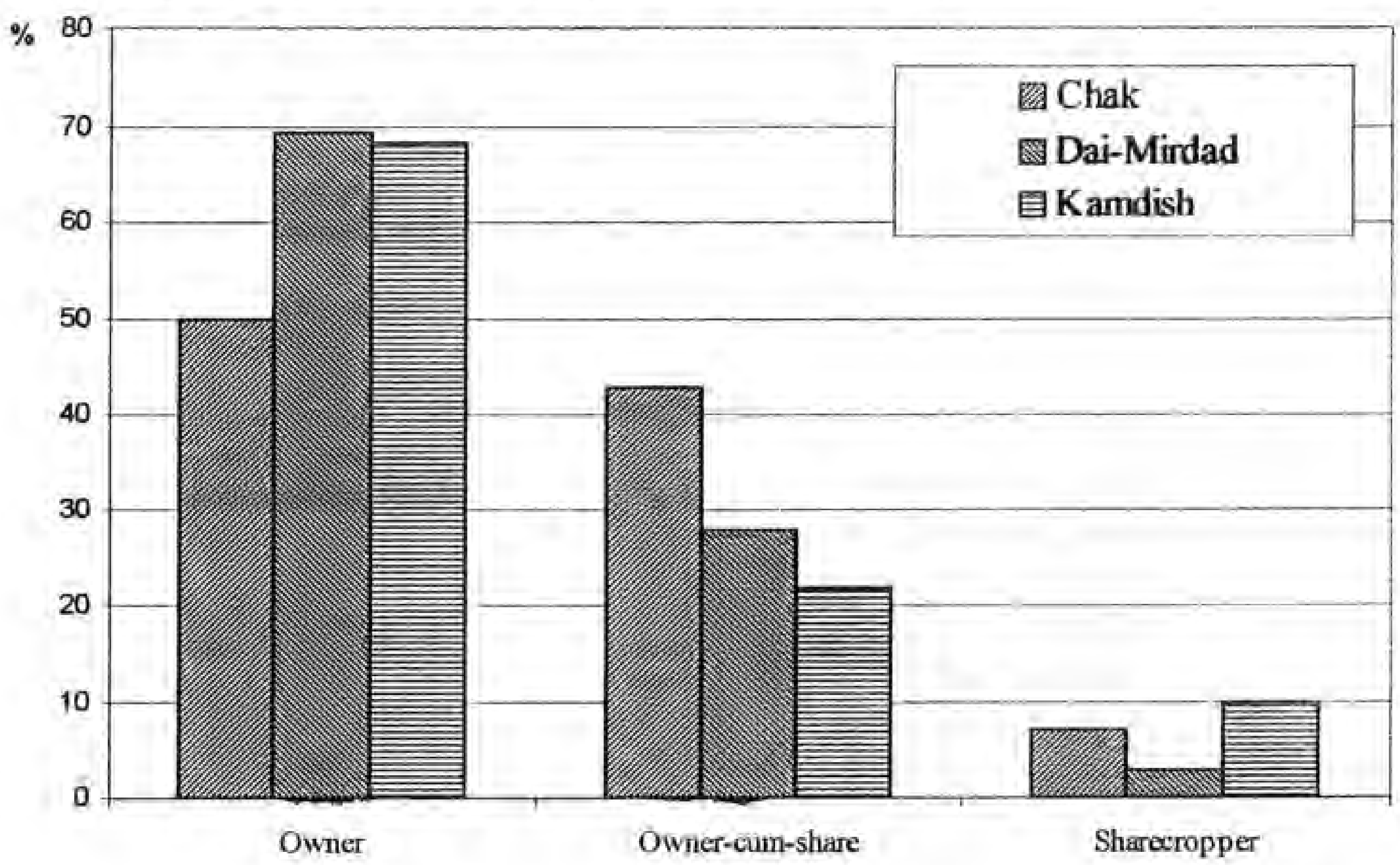
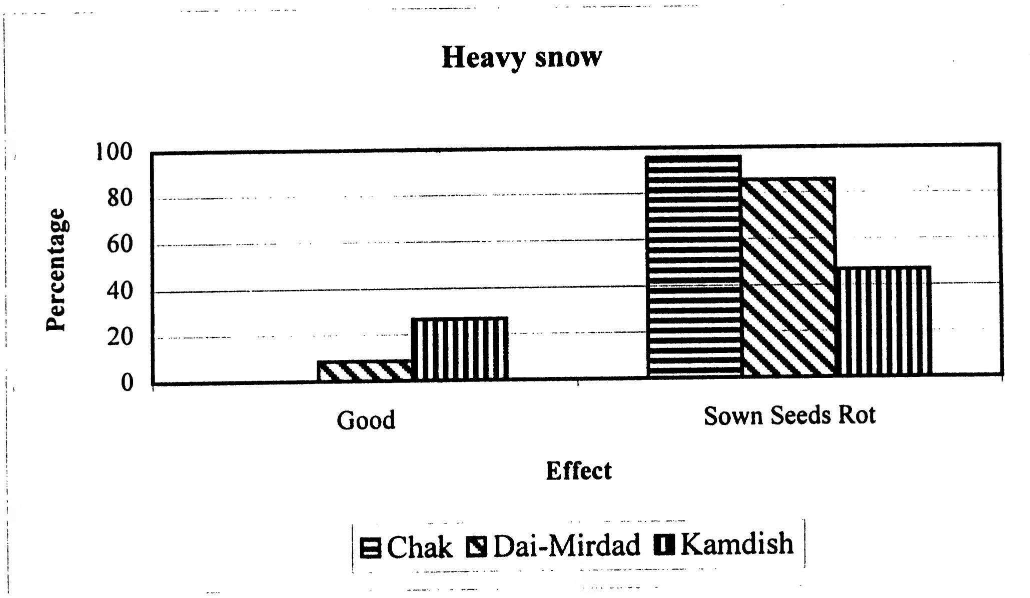
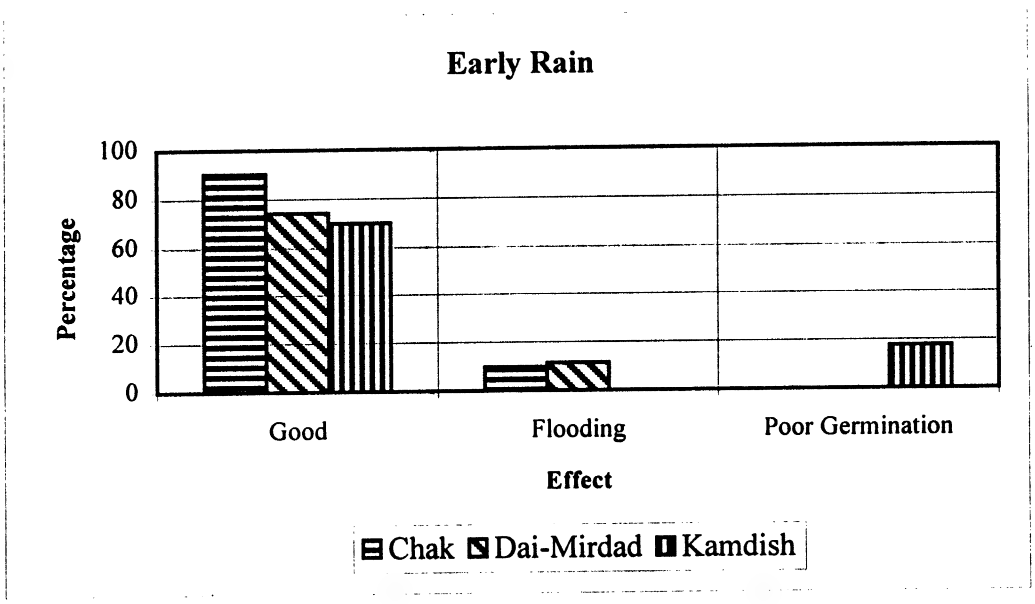


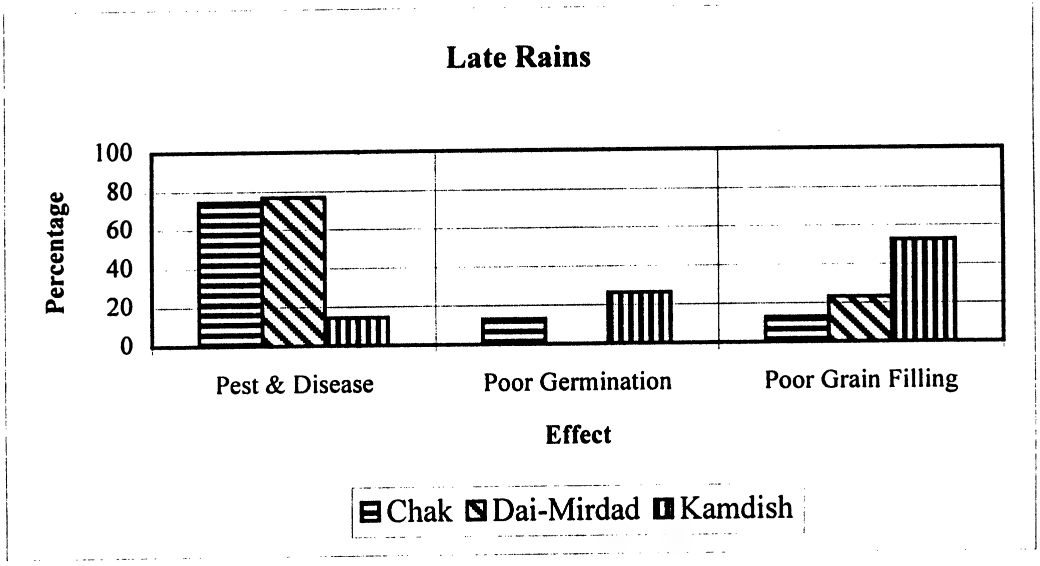
Figure 10 Agronomic Constraints

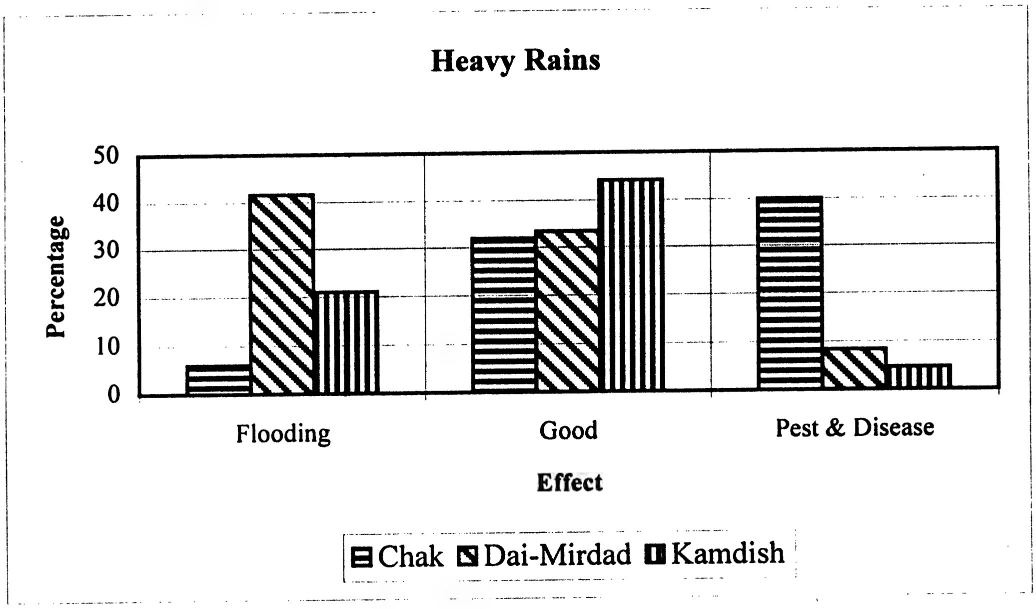
(i) Snow





(ii) Rains


Late Rains
100
80
60
40
20
0
Percentage
Pest & Disease
Poor Germination
Poor Grain Filling
Effect
Chak
Dai-Mirdad
Kamdish


Heavy Rains
50
40
30
20
10
0
Percentage
Flooding
Good
Pest & Disease
Effect
Chak
Dai-Mirdad
Kamdish

Dai-Mirdad; and 35 in Kamdish. Those who sold did so mainly locally in the primary or village bazaars to village shopkeepers and other traders.

The survey further revealed that the marketed surplus of maize in Kamdish was about 3% of the total output of the sample households. The largest sale was made by households cropping 2.1-4 jeribs; farmers cropping < 2 jeribs have made no sale at all. Generally, wheat was not sold, suggesting the subsistence nature of the household economy.

Table 26. Constraints to Marketing (percentage)

	Chak	Dai-Mirdad	Kamdish
Poor road condition	22.9	30.8	33.9
Lack of transport	26.2	24.6	14.3
Surplus too small	47.5	35.4	51.8
High fare	3.4	9.2	0.0

Inquiry was also made to find out the mode of transport and its availability. The survey revealed that the most popular means of transporting surpluses to the local markets is by donkey. Vehicles are also used in villages with access to roads; many households, however, depend on human labour. Because surpluses are too meager, human labour or donkeys can carry them. Meager surplus, poor road condition and transport shortages are the major obstacles to trade (table 26).

4.5.5.9. Food Insecurity

4.5.5.9.1. Direct Food Entitlement

In all households, access to food is largely determined by the food that they produce themselves (direct entitlement). The wheat, maize, millet, beans and potatoes as well as the various types of vegetables they grow represent the most important source of food for consumption as well as for cash. Table 27 presents summary statistics for the main cereal crops for the districts. Mean wheat output per household in Chak is nearly four times high compared to Kamdish. However, there is no significant difference in output between households.

Wheat production by households averaged 67 kg per capita in Chak, 54 in Dai-Mirdad and 50 in Kamdish (table 26). This is well below the target of 97 kg per capita which Afghans

Table 27. Mean Wheat Output Per Household (seer)

	Overall mean	Household Size 4-10	11-14	>15	F-sign. level
Chak	129.2	105.3	121.5	157.5	n.s.
Dai-Mirdad	102.8	97.3	89.0	116.2	n.s.
Kamdish		2-5	6-9	>10	
wheat	31.1	57.4	26.4	16.5	n.s.
maize	141.2	120.0	175.3	104.7	n.s.

Table 28. Per Capita Availability of Major Foodgrains

a) Per capita by household size

	Wheat (kg/person)	
Household Range	Chak	Dai-Mirdad
4 -10	80.8	90.9
11- 14	55.2	48.3
>15	31.3	33.3
Overall	67.2	54.2

b) Per capita by farm size

Farm Size (jeribs)	Chak	Dai-Mirdad
< 3	15.9	24.3
3.1-6	34.8	56.8
6.1-9	65.0	93.4
>9	100.5	141.9

c) Per capita wheat and maize in Kamdish

Household Size	Wheat	Maize	Farm size	Wheat	Maize
2-5	47.6	174.3	<2	6.8	52.3
6-9	65.8	144.9	2.1-4	43.3	135.1
>10	30.1	94.5	>4.1	20.5	154.5
Overall	49.7	125.3			

Note: per capita calculated by excluding landlord share.

themselves consider necessary. There is a direct association between household size and food availability – the smaller the household, the higher the per capita food while the obverse is true for larger households and this is demonstrated in the table above. However, when households are classified by farm size, small size operators have far less per capita foodgrain, both in relative (relative to other farm size groups) and absolute terms. The position of small farms <3 jeribs in Chak and Dai-Mirdad and < 2 jeribs in Kamdish is particularly precarious. The average for this group of farm households is 16 kg in Chak, 24 kg in Dai-Mirdad and 7

kg in Kamdish. In Kamdish, wheat supplements maize as the staple foodgrain, and per capita farm household direct entitlement (less crop share for tenants) is low. At 20 and 150 kg of wheat and maize per capita, respectively, large farm size groups produce close to the target required for sustenance.

At the present level of technology, the lack of arable land imposes strict limits on the possibility of households increasing production from area expansion. An increase in productivity is possible, but thwarted both by the lack of money to purchase the inputs (improved seed variety and fertiliser), inefficient markets and farm management.

4.5.5.9.2. Indirect Food Entitlement

Despite the variety of coping strategies pursed by farm households (see below), a major part of the sample households in the districts is confronted with seasonal food insecurity due to the failure of the agricultural system as well as the coping strategies to meet household needs (table 29). In Chak and Dai-Mirdad, many households experience food deficit in the summer; in Kamdish, spring is the main deficit season (figure 11).

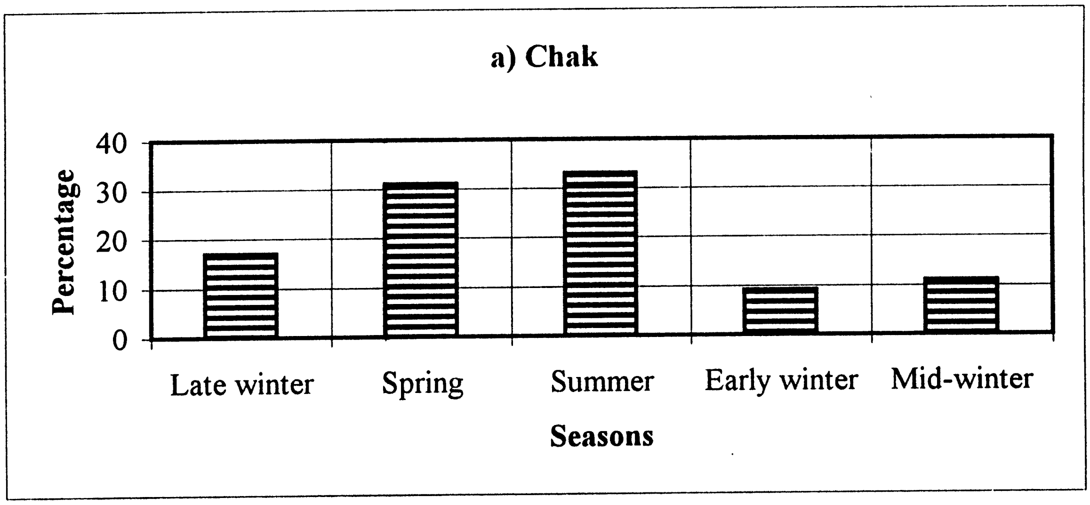
Table 29. Percentage of Households Experiencing Food Deficit

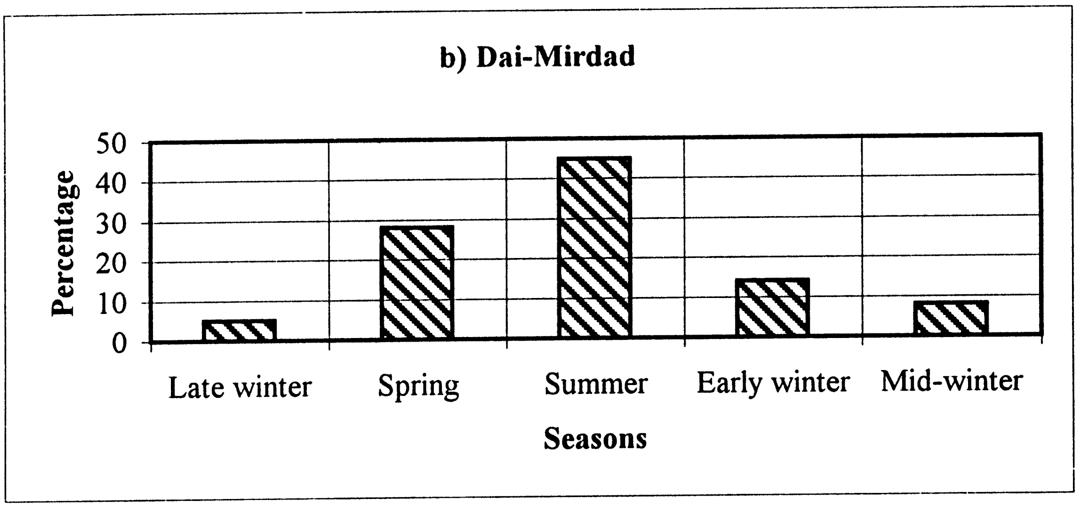
	Chak	Dai-Mirdad	Kamdish
Yes	88.1	91.7	82.9
No	11.9	8.3	17.1

4.5.5.10. Coping Strategies

The number of daily meals during summer and winter seasons did not vary much between households. The average is three times a day, but with great difference in both quality and quantity. In the winter season daily meal requirements tend to be high, mainly because of the tedious farm activities that exhaust energy consumed quite quickly. Households facing chronic food deficit have resorted to specific coping strategies: some are relying on social network to borrow cash or grain, others sale assets like animals and seek wage employment, both locally and abroad. These coping/adjustment strategies are explored below:

Figure 11. Food Deficit Seasons





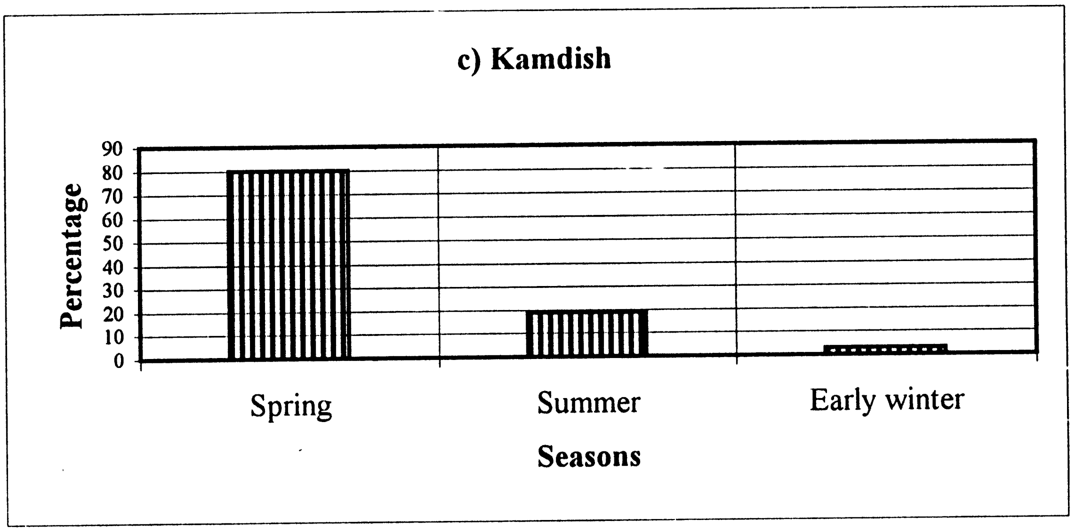
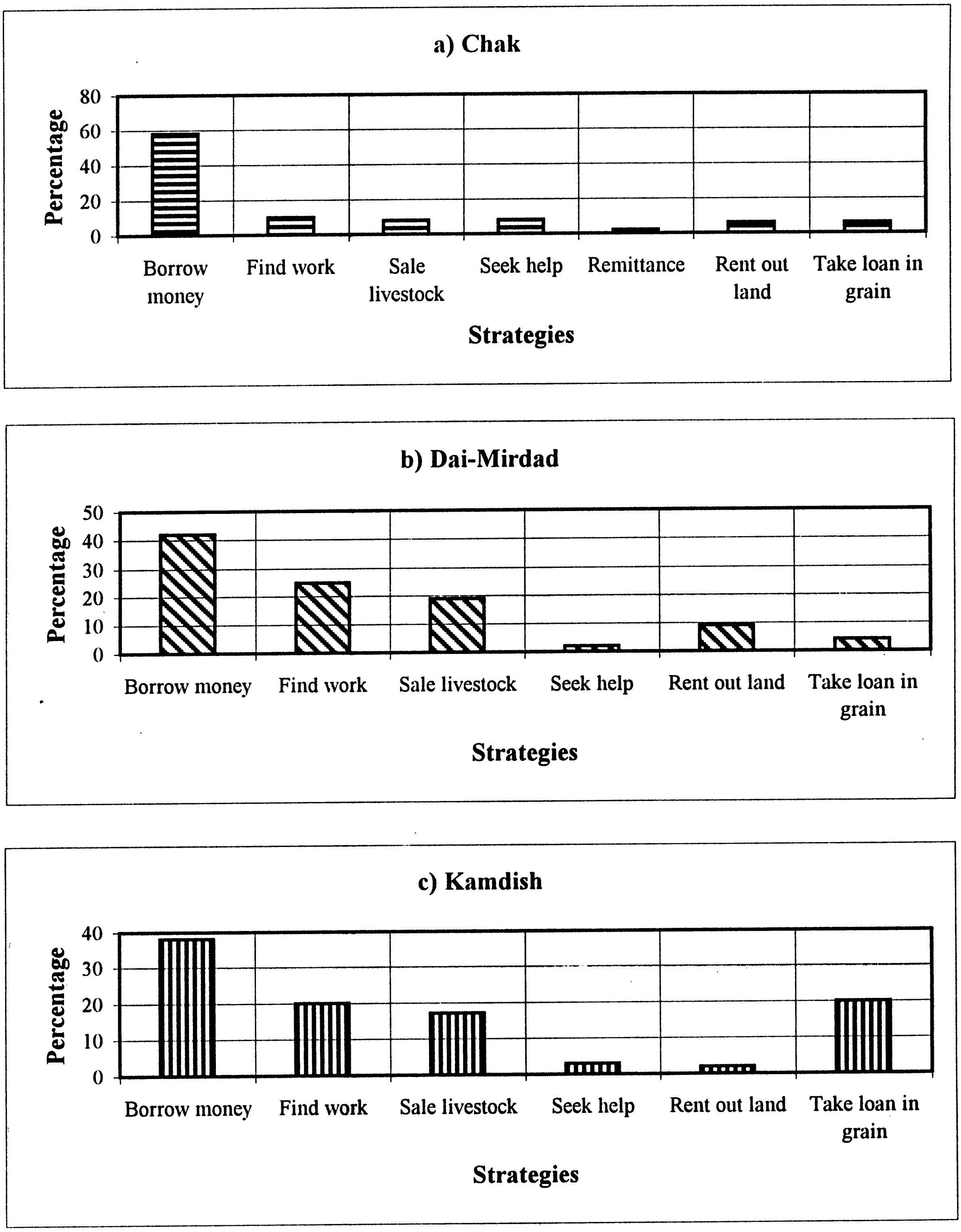


Figure 12. Strategies to Meet Food Shortfall



4.5.5.10.1. Food Purchase

Subsistence production is a major source of food for farm households in the three districts. Due to the production constraints discussed above, however, not every farm household is able to grow enough food to satisfy the food needs of its household members during the whole year. Farm households not producing enough to ensure annual food requirements from their farms supplement own production with trade. Food is sold in modest scale in the villages, but enough to satisfy demand. Most households, therefore, obtain their supplies from village bazaars. Still a large number of people travel to district centre markets or even farther than that to purchase supplies, both food and non-food items (figure 12). Table 30 indicates how frequently people travel to the nearest market to buy food items and other basic necessities. Many households in Chak and Dai-Mirdad travel to markets every week. In Kamdish, the nearest markets are visited monthly but many go annually precisely because the shops are far in Barikot and Arandu. Markets are visited primarily to buy food; few go to sale agricultural output, as indicated in figure 13.

Table 30. Frequency of Travelling to Nearest Market (percentage of sample population)

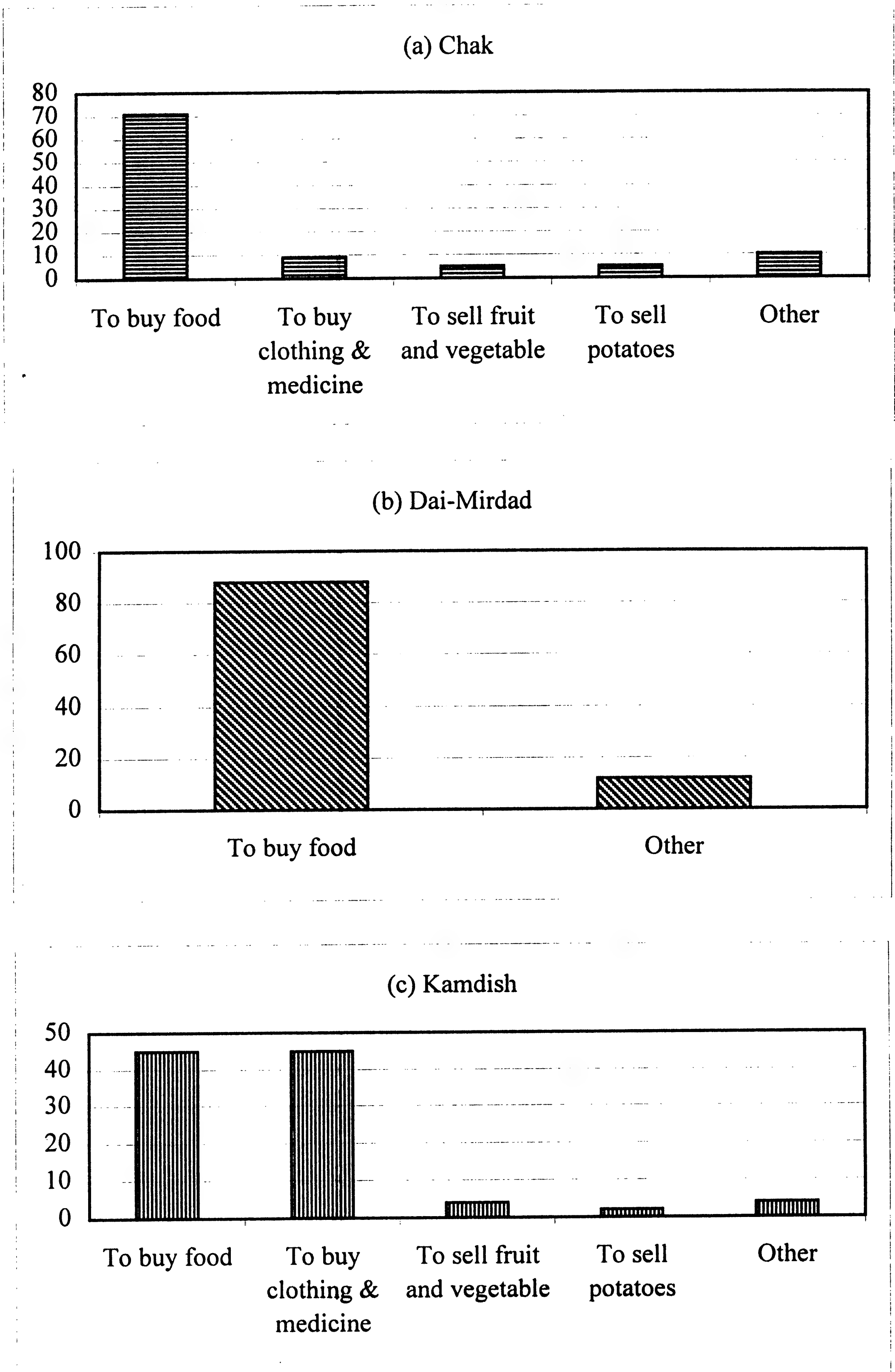
	Chak	Dai-Mirdad	Kamdish
Weekly	41.5	60.7	3.1
Monthly	58.0	39.3	40.0
Annually	0.0	0.0	56.9

The problem of inadequate subsistence production is compounded, to a certain extent, by food sales shortly after the harvest – mostly likely at depressed prices – to meet essential cash needs for clothing, fuel, health care and the like (table 31). These farm households deplete their stocks several months before the next harvest and, hence, they have to rely on market purchases – often at increased prices – or non-market transfers to meet their nutritional needs during the lean season. As a consequence of this, many households experience acute food shortage between March and June.

Table 31. Surplus Disposal Pattern and Prices (percentage of those selling)

	Disposal Pattern		Prices	
	Immediately	Within three months	Good	Not good
Chak	96.1	3.9	16.7	83.3
Dai-Mirdad	94.1	5.9	13.9	86.1
Kamdish	91.2	8.8	39.1	60.9

Figure 13. Purpose of Travelling to Market (Percentage)



4.5.5.10.2. Casual Labour

Wage labour for agricultural activities is not widely known; if it does, it is only for the peak planting and harvesting months. Moreover, wages are often paid in-kind, mostly food (figure 6).

The labour market can be seen as a kind of security system, enabling labour to be exchanged for food in the lean months. As the supply of labour very much depends on the availability of food in poor households, it inevitably rises as the season progresses. Thus households offer their labour when they have exhausted the reserves of food they have produced or when there is an urgent need for cash. However, the majority of households rely on labour mobilised through cooperation rather than employ wage labour. Traditional forms of cooperation in labour exist as a means of coping with farm labour shortage in peak months for the non-mechanised operations such as weeding, harvesting and threshing.

4.5.5.10.3. Labour Migration

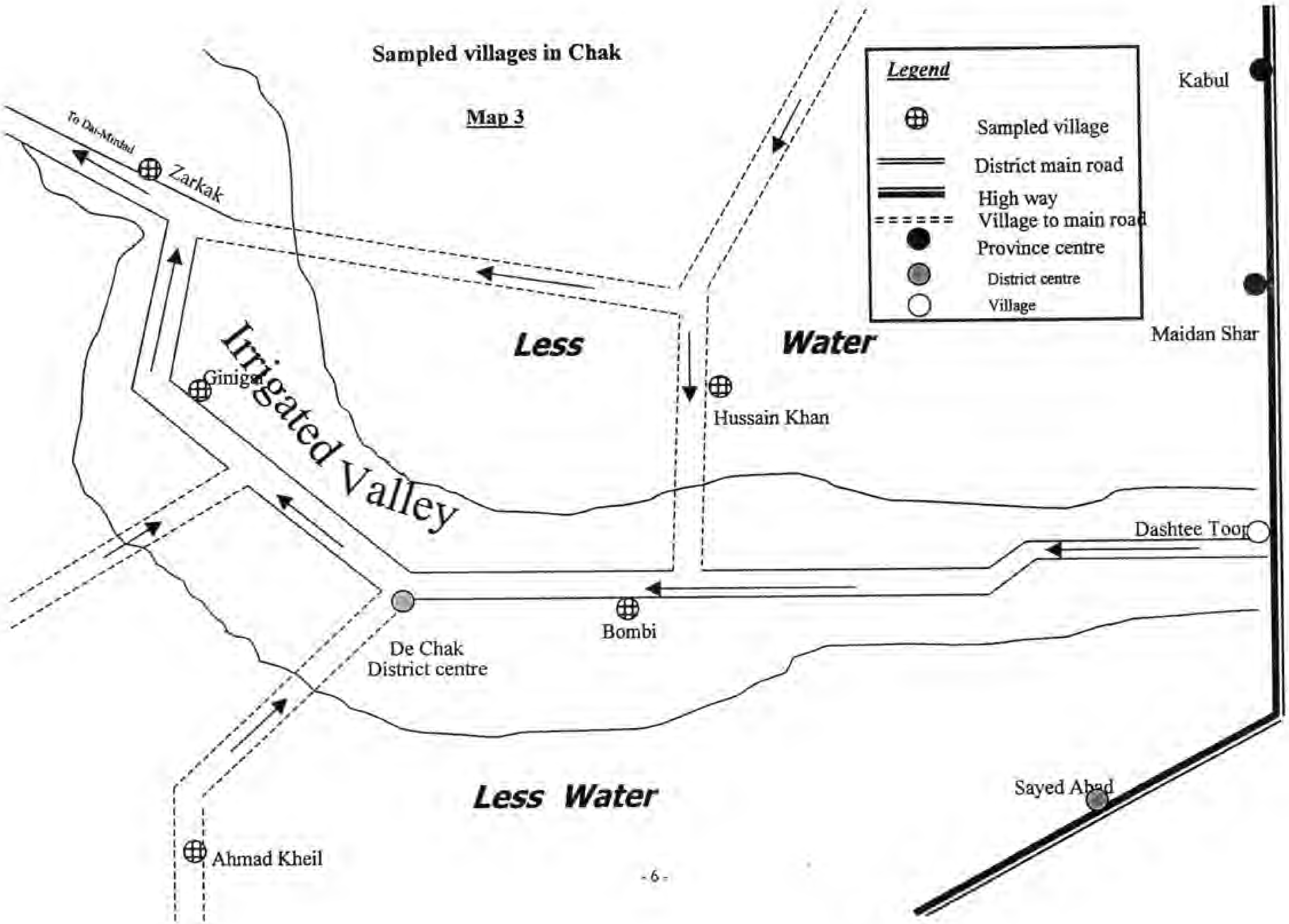
A general strategy of farm households to deal with food shortage is to diversify the income sources. One of these sources is labour migration (table 32). Seasonal and long-term migration is now a normal activity among the peoples of Chak and Dai-Mirdad in particular. The head of the household or a grownup son from the family goes to Pakistan and Iran in search of work. The departure of the head of the household often signals the precarious position of the household, in terms of food. The survey shows that 51% of the sample households in Chak had one or two persons away from home working; 5% had three persons away working. In Dai-Mirdad, 42% had less than two persons working away. Labour migration is not so common among the Nuristanis.

Table 32. Labour Migration Rate (percentage of households)

	Chak	Dai-Mirdad	Kamdish
Number of persons migrated			
• one	17.1	30.6	2.4
• two	34.1	11.1	2.4
• three	4.9	5.6	0.0
• more than four	0.0	2.8	0.0

Sampled villages in Chak

Map 3



4.5.5.10.4. Credit

The survey shows (tables 33 and 34) that nearly 80% of the respondents in each district were involved in credit. In Chak and Dai-Mirdad, loans were needed mostly in the winter season; in Kamdish, demand for credit peaks up in the spring season. The major reasons for borrowing are to buy food and medical care. This suggests that credit serves the function of insurance against consumption fall.

Table 33. Percentage of Households Involved in Credit and the Size of Loan[1]

	Chak	Dai-Mirdad	Kamdish
Percentage of households borrowed (of sample)	86	81	73
Average amount borrowed (Rs/household)	6378	9248	13956
Percentage of households borrowing (million rupees)			
• < 1	17	13	7
• 1 – 2	8	17	10
• 2 – 3	8	0	3
• 3 – 7	28	30	33
• > 7	39	40	47

[1] Data refer to 1997

Table 34. Purpose and source of borrowing (percentage)[1]

	Chak	Dai-Mirdad	Kamdish
Source of borrowing			
• friends	3	7	7
• relatives	61	31	40
• shopkeepers	17	41	30
• villagers	19	21	23
Purpose of borrowing			
• health care	9	4	12
• food items	76	74	79
• purchase of livestock	6	4	3
• constructing a house	3	0	3
• social (marriage, death)	6	18	3

[1] Data refer to 1997

The major sources of credit are relatives and local shopkeepers. Typically loans are given for a single year. The usual practice is that the borrower agrees to pay his debt within a crop season, but rollover dominates. Thus, nearly all those who had borrowed last season still owe money a year later. There are no interlinked credit relations; loans are paid in cash and no interest is charged.

4.5.5.11. Household Income and Expenditure

The magnitude of relative income inequality has been estimated by means of household data. The same data also depict the sources of household income by farm size (table 35). Clearly, remittance stands as the main source of household income, accounting up to 50% of total income in the case of Dai-Mirdad. Income from wage, mainly in the informal sector in Pakistan and Iran, is the next main category with a share of more than 25% in Dai-Mirdad, 22% in Chak and 19% in Kamdish. Hence, off-farm income in Chak and Dai-Mirdad districts accounts for over 70% of the total annual cash income earned by the households. In Kamdish, the share of wage employment and remittance in total income of all households stands relatively small, compared to income earned from timber sale.

Table 35. Percentage Distribution of Annual Income by Source and Farm Size

	Farm Size				Percentage
Source of Income	< 3	3.1-6	6.1-9	>9	of total[1]
a) Chak					
Crop sale	2.9	35.1	0.0	61.9	11.2
Wage labour	42.5	44.9	12.5	0.0	22.4
Livestock sale	0.0	23.3	23.3	53.4	2.4
Vegetable sale	31.9	47.4	20.6	0.0	2.7
Fruit sale	0.2	21.3	46.9	31.6	19.9
Remittance	35.5	31.4	25.1	7.9	41.4
Percent of total[2]	25.4	33.1	23.7	17.8	100.0
b) Dai-Mirdad					
Crop sale	37.3	0.0	62.1	0.0	1.0
Wage labour	63.8	27.2	6.7	2.3	25.8
Livestock sale	26.2	67.5	6.3	0.0	7.6
Vegetable sale	21.8	22.9	33.2	22.1	11.3
Fruit sale	9.3	90.7	0.0	0.0	3.8
Remittance	23.6	57.3	2.4	16.7	50.5
Percent of total	33.6	47.1	7.8	11.5	100.0
c) Kamdish					
	<2	2.1-4	4.1-6	>6.1	
Crop sale	0.0	0.5	2.1	7.2	3.7
Wage labour	57.6	27.7	42.3	14.2	19.1
Livestock sale	11.3	26.7	0.0	17.5	20.5
Vegetable sale	0.0	1.2	0.0	0.0	0.4
Fruit sale	4.0	9.6	7.9	5.6	7.4
Remittance	7.0	0.0	0.0	0.0	2.5
Other[3]	20.1	34.3	47.6	55.5	46.4
percent of total	30.3	25.2	3.8	40.7	100.0

[1] Percentage for row data (income source) from total income; [2] percentage for column data (farm size) from total income; [3] refers to income earned from timber sale and rugs

The income sources for different farm size groups follows more or less the above general pattern. In all the districts, the share of income from wage labour is higher for the lesser size groups than for the larger sizes. In Chak and Dai-Mirdad, the share of remittance from abroad is higher for large size groups than for the small farm size groups. In Kamdish too, large farm size groups amass relatively more income from timber sale than small size operators. Overall, agriculture does not generate sufficient marketable surplus for sale.

Table 36. Average Annual Household Expenditure by Farm Size (Pak. Rupees) (percentage in parenthesis)

	Farm Size				Percentage
Expenditure	< 3	3.1-6	6.1-9	>9	of total[1]
a) Chak					
Wheat	4937 (32.6)	6763 (20.1)	15356 (45.4)	9658 (30.6)	51.8
Rice	1853 (12.2)	2161 (6.4)	3363 (9.9)	2474 (7.8)	15.9
Gee	5367 (35.5)	14004 (41.7)	8493 (25.1)	9201 (29.1)	14.5
Meat	188 (1.2)	2895 (8.6)	1939 (5.7)	3780 (11.9)	3.9
Tea	1072 (7.1)	3217 (9.6)	2502 (7.4)	2987 (9.4)	1.6
Sugar	193 (1.3)	1655 (4.9)	514 (1.5)	1489 (4.7)	3.6
Kerosene	1523 (10.1)	2823 (8.7)	1630 (4.8)	2022 (6.4)	8.7
Percent of total[2]	16.7	34.1	30.5	18.7	100.0
(b) Dai-Mirdad					
Wheat	3060 (13.7)	4625 (20.9)	1713 (10.7)	3794 (17.1)	35.7
Rice	1052 (4.7)	1392 (6.3)	445 (2.8)	769 (3.5)	12.1
Gee	11199 (50.2)	9909 (44.9)	7644 (47.6)	10853 (48.9)	26.9
Meat	1987 (8.9)	1228 (5.6)	1239 (7.7)	2064 (9.3)	5.5
Tea	2649 (11.9)	2632 (11.9)	1930 (12.0)	2145 (9.7)	2.9
Sugar	766 (3.4)	632 (2.9)	1911 (11.9)	869 (3.9)	5.7
Kerosene	1590 (7.1)	1638 (7.4)	1184 (7.4)	1716 (7.7)	11.2
Percent of total	46.9	34.6	9.7	8.7	100.0
(c) Kamdish[3]					
Wheat	549 (6.5)	284 (3.9)	961 (11.6)	206 (1.9)	13.3
Rice	113 (1.3)	69 (1.0)	166 (2.0)	112 (1.0)	3.2
Gee	3209 (37.8)	2163 (30.1)	1982 (24.1)	2123 (19.2)	18.3
Meat	225 (2.6)	876 (12.2)	901 (10.9)	2252 (20.4)	6.7
Tea	1180 (13.9)	1162 (16.2)	1609 (19.5)	214 (19.4)	4.1
Sugar	2123 (24.9)	1834 (25.6)	1737 (21.1)	3185 (28.8)	35.9
Kerosene	1098 (12.9)	786 (10.9)	875 (10.6)	1029 (9.3)	18.5
Percent of total	39.5	37.7	13.3	9.5	100.0

[1] percentage for row data (income source) from total income; [2] percentage for column data (farm size) from total income; [3] expenditure on maize was negligible, hence omitted; other expenditure groups like health and clothing also take an increasing share of income, often with an increasing household income. However, they are more stable than for individual consumption items.

The share of household income spent on food and other items by different size categories is presented in table 36. As expected the major part of expenditure consists of market purchase

of food items, mainly wheat and rice. The budget share of food purchase was high in Chak (65%), compared to 48% in Dai-Mirdad and 18% in Chak. When expenditure is estimated for various farm sizes, the data show that the budget share of small farm size groups was high, up to 47% in the case of <3 jerib farms in Dai-Mirdad. The share of small farm size groups in the total expenditure was also high in Kamdish. It may be the case that higher level of area operated is correlated with higher levels of family welfare. Other expenditure groups such as kerosene, tea and sugar also claim a significant share of the household expenditure, in some cases rising with farm size. However, the precarious nature of the economy is such that virtually all the sample households in all the districts procure food from the market. In this respect, off-farm income sources are critical to household food security.

PART V. THE LIVESTOCK ECONOMY

5.1. Livestock Population and Herd Composition

Throughout Afghanistan, large number of animals were lost, both through the direct effects of the war and because farmers were forced to sale them for cash to buy food (FAO, 1997)[2]. This may have affected the herd composition as well. Ratios have been worked out to assess the aggregate herd composition (Table 37). The table shows that in 1976, there were more goats and sheep than cattle, but fewer sheep than goats. This herd composition has not changed. The survey shows that there are still more goats than cattle but fewer sheep. The ratio of sheep to goats has not changed much.

Table 37. Overall Ratios: the sum for all the case-districts

	1976	Surveys
Sheep: Goats	0.34	0.36
Sheep: Cattle	1.31	0.96
Goats: Cattle	3.9	2.66

Chi-square = 278.688; Sign. 0.000

Table 38. Percentage of Animals, circa 1976 and survey: a measure of change in herd composition

	Chak	Dai-Mirdad	Kamdish
Cattle			
1976	39.3	16.5	11.8
Survey	31.2	20.9	18.8
Sheep			
1976	28.9	44.6	13.6
Survey	29.2	52.3	1.5
Goats			
1976	31.8	38.9	74.6
Survey	39.6	26.8	79.7

Source: Data for 1976 from Historical and Political Gazetter of Afghanistan, Vol. 6, 1985

In table 38, having added the three species together for each district, we have calculated the proportion of each species in the total herd for each district. Table 38 thus suggests that in Kamdish, two-thirds of the animals raised in 1976 were goats; cattle and sheep were of lesser importance. In Chak, there was not much difference in the herd composition, though cattle accounted slightly more than sheep. By contrast, cattle in Dai-Mirdad accounted for less than a quarter of the herd population; sheep were the most important animals raised by the people.

[2] FAO (1997) Afghanistan Agriculture Strategy, 1997

It is possible that as grazing land diminished and agriculture land intensively used, keeping cattle had to give way to smallstock that can forage on shrubs. The decline in the cattle population in Chak indicates this pattern. In trying to rebuild their herd destroyed during the war, farmers may have also preferred smallstock than cattle. The physiological ability of smallstock to multiply rapidly makes them particularly attractive to resource poor farm households.

Table 39. Number of Households and Livestock in the Sample for the Herd Structure by Farm Size (household numbers in parenthesis)

	Farm Size (jeribs)				
	<3	3.1-6	6.1-9	>9.1	District total
Chak:					
Cattle	16 (6)	20 (6)	13 (4)	14 (6)	63 (22)
Sheep	5 (2)	28 (5)	6 (2)	39 (5)	73 (14)
Goats	16 (5)	31 (6)	24 (5)	20 (4)	91 (20)
Donkeys	6 (6)	8 (6)	5 (4)	11 (5)	30 (21)
Chicken	26 (5)	46 (9)	41 (7)	61 (6)	174 (25)
Dai-Mirdad					
Cattle	20 (9)	25 (11)	13 (4)	6 (2)	64 (26)
Sheep	71 (10)	73 (9)	9 (2)	7 (1)	160 (22)
Goats	50 (9)	21 (7)	7 (2)	4 (1)	82 (24)
Donkeys	10 (8)	10 (9)	7 (4)	2 (2)	29 (23)
Chicken	55 (10)	63 (11)	20 (4)	11 (3)	149 (28)
Kamdish					
	< 2	2.1-4	4.1-6	>6-1	
Cattle	46 (7)	47 (8)	3 (2)	14 (2)	110 (19)
Sheep	1 (1)	4 (2)	2 (2)	2 (2)	9 (7)
Goats	314 (4)	155 (4)	1 (2)	2 (2)	472 (12)
Donkeys	4 (3)	3 (3)	1 (1)	1 (1)	9 (8)
Chicken	44 (6)	74 (11)	15 (2)	40 (1)	173 (20

Summary statistics:	Chak	Dai-Mirdad	Kamdish
Gini coefficient for cattle	0.36	0.38	0.29
Mean number of animals per household	2.86	2.46	5.79
Number of households with no cattle	20	10	22
Gini coefficient for smallstock (SS)	0.42	0.28	0.11
Mean number of SS per household	4.97	5.90	25.3
Number of households with no SS	8	0	22

Note: Gini ratios measure the distribution of the species between the size groups.
Figures in parentheses are number of households (HHs) who own the particular species

Livestock is still a major source of employment, income and food for farm households in all case-districts. Unless constrained by resource shortage, all farm households raise a few chicken and two or three goats and sheep for subsistence purpose. There are also households who can afford to keep one or two cows and oxen, again for home use. Table 39 summarises the distribution of the various species by farm size and presents a summary statistics on inequalities between the size categories. Livestock ownership, between farm sizes is not skewed in either of the districts, as measured by the Gini ratios. The distribution is more equal in Kamdish than in Chak or Dai-Mirdad. On average, a household in Kamdish owns twice as many cattle as in Chak and Dai-Mirdad. There are, however, a substantial number of households, particularly in Kamdish, who do not own either cattle or smallstock.

5.2. Livestock Productivity

Productivity can be expressed in a number of ways. Goats and sheep are sources for essentially the same products as cattle. They produce some wool, however, wool is not produced on commercial scale; it is used by women to make rugs.

Table 40. Ratio of Female to Male Animal[1]

	Chak	Dai-Mirdad	Kamdish
Cattle, cow: ox	1.6	1.4	6.6
Sheep, ewe: ram	18	16.4	0.0
Goat, female: male	29	7	2.7
Poultry, hen: cock	5	3.7	3.3

[1] Excluding immature animals

Meat and milk are the other main products of all the domestic ruminants. The faster reproductive rates of smallstock, their more rapid growth and early age of offtake enable them to produce meat on an annual basis. However, it should be recognised that in traditional production systems, both cattle and smallstock are essentially dairy animals. Farmers do not run a commercial beef and mutton herds. Moreover, households in the rich stratum who keep more male animals than others, have very low offtake. Female animals are kept for breeding and for their output and the males are sold for cash income. Furthermore, cattle are hardly slaughtered at all for their meat; smallstock are slaughtered during the religious festive. A

glance at table 40 clearly indicates that there are significantly more female animals than males in all the districts.

Another measure of livestock productivity is given by the data in table 41. The milk yield of cattle calculated by extrapolating yield over an average of 7 month lactation period would be 315 litres in Chak, 420 litres in Dai-Mirdad, and 441 litres in Kamdish. Milk yield for sheep and goats can be derived in the same manner. The fewer number of immature smallstock in particular suggests that after parturition, farmers keep only those needed for breeding.

Table 41. Index of Livestock Productivity[1]

	Chak	Dai-Mirdad	Kamdish
Ratio of calf to cow	0.70	1.1	0.63
Average milk/cow/day	1.53	2.0	2.1
Lactation length (months)	6.9	6.9	7.1
Ratio of immature/female sheep	0.39	0.16	n.a
Average milk/sheep/day	1.1	0.91	n.a
Lactation length (months)	3.2	2.8	n.a
Ratio of immature/female goat	0.34	0.16	0.10
Average milk/goat/day	0.93	0.99	1.1
Lactation length (months)	4.0	3.5	3.8

[1] In the absence of written material on the subject, it has not been possible to test the reliability of these indices; care is, therefore, required in interpreting them. Milk output per animal is measured in litre; n.a. means not available.

5.3. Constraints to Livestock Productivity

5.3.1 Fodder and Animal Feeds

Livestock provide a relatively high degree of food security and income. Over the last two decades, however, this farming system has been depleted significantly. Thus, in Chak and Dai-Mirdad one of the major constraints to livestock production is lack of animal feed. Even in Kamdish where grazing land is relatively abundant, animal productivity is affected by feed shortage. The response from the survey suggests that the main feed deficit months are March to May in Chak (52%) and April to July in Dai-Mirdad (60%). Farm households attempt to overcome this feed shortage by allocating some land to grow alfalfa and fodder, but very small as a proportion of the total cropped area. When asked how else they overcome the feed shortage, again a large percentage of households, over 90% in Chak and Dai-Mirdad, said they would buy feed. Farmers also use crop residues for cattle. Cereal straws, vegetable and

fruit leftovers are also major sources of feed, especially for cattle. Legumes offer promise but potential may not be realised because land will have to be taken from cropping. Devoting land to forage crops is not a viable option, especially to resource poor farmers. Increased forage production may have to depend on changing the cropping system. With increased productivity more crop residues can be expected to follow.

In Chak and Dai-Mirdad districts, all animals are stable fed with hay, cereal straw, mustard seed and household garbage during the period October to March. During the summer, sheep, goats and donkeys are taken to the communal grazing areas. Each community has one or two shepherds to guard the animals. The community pays shepherds nominal wages. The animals return daily before dark and are kept in stable overnight. Milking cows and oxen are stable fed year round.

Farm households in Kamdish do not face feed shortage comparable to Chak and Dai-Mirdad. First, herd size, depleted during the conflict years, has yet to recover to cause pasture shortage. In addition, being a mountainous district and given current farmer technology, a large part of the land can be used for grazing only. Nonetheless, quite a high proportion of the respondents (53%) felt that animal productivity is constrained by feed shortage in the months of April to May. The grazing pattern is cyclic where in the winter season all the species of livestock utilise the pastures in the valleys and around riverbanks. In the peak of the winter season stable feeding becomes essential. In the summer season, all animals migrate to the summer grazing pastures high up on the mountains. The animals stay there until the weather becomes cold by which time the pasture tends to decline. This semi-transhumance grazing strategy aims at securing a rapid conversion of the growing vegetation while also relieving grazing pressure in one location.

The strategy of keeping more smallstock than cattle can also be interpreted, in part, as a response to feed shortage. Small stock, particularly goats, can adapt to feed shortage as they forage on shrubs and tree leaves. Cattle, by contrast, depend on grass, and due to shortage of grazing pastures the species account for a tiny proportion of the total herd. Farmers acknowledge the feed demand of the various species and, to that end, goats and sheep, because of their wider dietary range, are better suited to the dwindling feed resources.

5.3.2. Animal Diseases

Livestock production in all the districts is also constrained by disease and the lack of veterinary service to provide vaccinations and treatments. Table 42 provides information about animal diseases prevalent in the districts.

Table 42. Common Livestock Diseases and Parasites in the three Districts

	Cattle	Sheep	Goat	Poultry	Donkey
Anthrax	xxx	xxx	xxx		xxx
CCPP	xxx	xxx	xxx		
Enthrotoximia		xxx	xxx		
Foot and mouth	xxx				xxx
Pox diseases		xxx	xxx		
New castle				xxx	
Liver flukes	xxx	xxx	xxx		
Tape worm					xxx
Mites		xxx	xxx		

High mortality rate is probably the major problem acting on the present level of output. The survey, however, indicates very low mortality rates for cattle and smallstock (Table 43). However, mortality rates are likely to be higher given the fact that little veterinary services are available to farmers. The survey data is based on a sample of one year and does not shed light on historical trend. Mortality rate of smallstock in Kamdish where there is no vaccination at all is likely to be above the average. Even in Chak where there is relatively better knowledge and use of veterinary services, animal mortality is bound to be high. The data are, therefore, inconclusive and further study is needed to ascertain the pattern.

Many of the diseases are thought to be controllable, given the right infrastructure and personnel. A simple package of veterinary intervention can reduce the incidence of diseases in animals and improve per head productivity. In addition to CCPP (in cattle), diseases which are repeatedly mentioned by farmers include anthrax, which affects humans as well as cattle, horses, donkeys, and smallstock, blackleg and enthrotoximia. Newcastle disease affects poultry production in all the three districts.

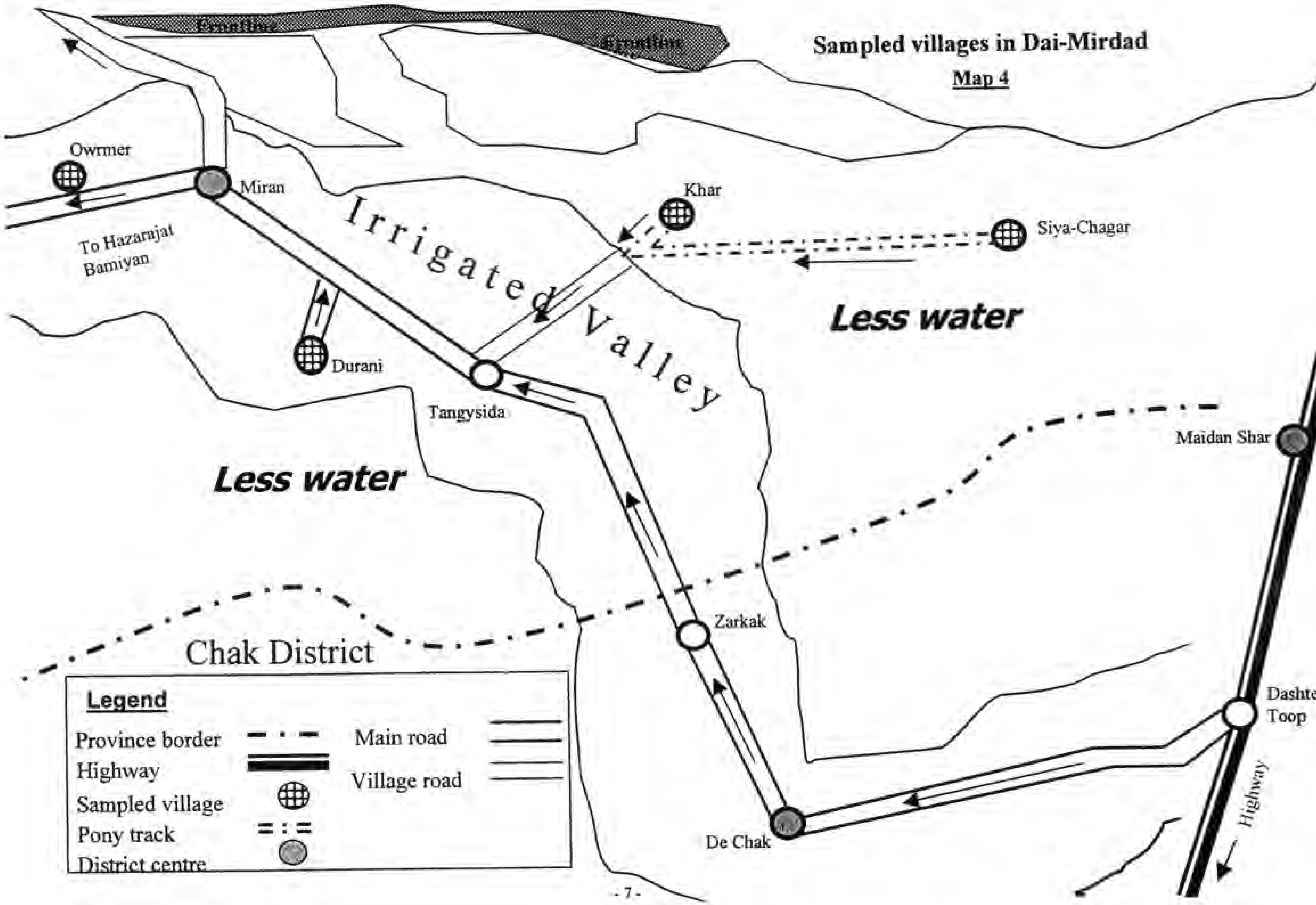

Sampled villages in Dai-Mirdad
Map 4
Owrmer
Miran
To Hazarajat
Bamiyan
Irrigated Valley
Khar
Siya-Chagar
Less water
Durani
Tangysida
Maidan Shar
Less water
Zarkak
Chak District
Dashte
Toop
Highway
De Chak
Legend
Province border
Highway
Sampled village
Pony track
District centre
Main road
Village road

Table 43. Animal Mortality and Birth Rates (Percentages)[1]

	Chak			Dai-Mirdad			Kamdish		
	Cow	Sheep	Goat	Cow	Sheep	Goat	Cow	Sheep	Goat
Mortality rate (neo-natal)	6.3	4.3	7.5	7.1	11.9	6.7	3.2	-	32.8
Mortality rate (other)	2.8	4.2	10.0	2.9	9.5	10.0	5.4	-	15.7
Birth rate	76	69	67	82	59	41	56	-	71.3

[1] Mortality rate (neo-natal) is the number of neo-natal deaths divided by the number of births; mortality rate (other) is the number of other deaths divided by the total herd size; birth rate is the number of births divided by the total number of females.

Although in general the animal health constraints are known, there are local differences in prevalence and disease types. The survey has looked into this subject to provide an overview of the major disease problems in the districts.

PART VI. HEALTH AND HEALTH PRACTICES

6.1 Common Illnesses and Immunisation

The most common diseases in all the three districts are measles, dysentery, tuberculosis, diarrhea, typhoid and bronchitis. Malaria was reported in Chak and Dai-Mirdad, but it is common only among men who have worked temporarily in Pakistan. In all the districts, many people suffer from diarrhea, especially during the summer. Awareness of the treatment is high; up to 60% of the sample households said they would consult a doctor. A large percentage of the households are also familiar with ORS, which can be purchased from local bazaars and clinics (Table 44).

Table 44. Familiarity with ORS and its Sources (percentage)

		Chak	Dai-Mirdad	Kamdish
Familiar with ORS		95	97	83
ORS source	• Clinic and hospital	41	74	35
	• Bazaar	41	26	59
	• Home-made	7	0	6
	• Kabul	11	0	0

Bronchitis tends to be severe in the winter, particularly in the mountainous villages. In one of the villages surveyed in Chak, there was a bronchitis epidemic a few years ago; there was also a similar epidemic in Dai-Mirdad. One sampled village in Kamdish reported an epidemic of cholera two years ago.

Children suffer and many die from measles, diarrhoea, tetanus, and polio. NGOs and UNICEF try to prevent child mortality by providing immunisation services. In Chak, the private hospital has an immunisation team that provides BCG, DTP, polio, and measles vaccinations for children, and tetanus vaccinations for women. In Dai-Mirdad, AVICEN and IBSINA have teams of vaccinators assigned to specific areas, and in Kamdish UNICEF vaccinates children and women. Table 45 shows child immunisation coverage among the sample households.

Table 45. Child Immunisation in Chak, Dai-Mirdad and Kamdish Districts (Percentage)[1]

	Immunised	BCG	DTP	Polio	Measles
a) Chak	93	93	93	93	93
b) Dai-Mirdad	100	100	100	100	100
c) Kamdish	78	68	76	78	78

[1] Health services provide immunisation packages following UNICEF guidelines.

6.2. Birth and Child Mortality

In Chak, 62% of the births were attended by traditional birth attendants (TBA); the corresponding figure for Dai-Mirdad is high, 95%. The TBAs in Chak were trained by the private hospital operating in the district centre. In Dai-Mirdad, AVICEN has provided the necessary training. In Kamdish district, untrained TBAs attended 57% of the births. On average women have about eight children, and the average number of births during the last five years are 2.6 in Chak, 2.7 in Dai-Mirdad and 1.6 in Kamdish. The number of live birth is high, especially in Dai-Mirdad (Table 46) which can be attributed to the high attendance of births by TBAs. A correlation analysis of the number of live births with the number of births attended has given a high value, 0.98 (significant at 0.001), for Dai-Mirdad. For Kamdish and Chak, the correlation was not significant, $r = 0.39$ for Kamdish and $r = 0.53$ for Chak. The number of children dying before the age of five is high in Kamdish district (Table 46), probably due to the harsh environment and poor health infrastructure.

Table 46. Birth and Child Mortality

		Chak	Dai Mirdad	Kamdish
Average number of births during the last five years		2.6	2.7	1.6
Percentage of live births		87.6	98.9	89.6
Percentage of births attended by TBAs		62.3	94.8	56.7
Households of which 1 child under five died (%)		11	16	41
Households of which 2 children under five died (%)		0	3	19
Households of which > 2 children under five died (%)		0	6	15
Main reasons of death	• measles	25	25	4
	• bronchitis	0	12.5	0
	• diarrhoea	25	12.5	4
	• polio	0	0	4
	• fever	0	0	12
	• tetanus	0	25	0
	• unknown	50	25	76

6.3. Drinking Water

Figure 14 depicts the sources of drinking water in the districts. About 60% of the respondents in Chak access uncovered well; in Dai-Mirdad most people drink water from kareezes, rivers and springs. In Kamdish, 66% get water from rivers. In villages located on mountain slopes, extending and/or installing tanks to collect spring water and tapping this water using pipes would greatly improve the quality of life. In Chak, wells have been improved by DACAAR, who initiated a drinking water project, and the general hospital is regularly checking the water quality of the different water sources.

Drinking unclean water causes water-borne diseases like dysentery and typhoid. People seem to understand this. About 90% of the sampled households said they would filter dirt by using sedimentation; 8% in Dai-Mirdad said they would boil water, and 9% in Chak said they would chlorinate. The average number of households sharing the different water sources within villages differs between the districts. Table 47 shows details of drinking water sources in the three case-districts. Most people in Chak and Dai-Mirdad districts have access to wells as well as to latrines (70% for Chak and 76% for Dai-Mirdad). The latrines are located at an average of 102 m from the well.

Besides drinking water, households need water for their domestic animals. In Kamdish, people use mainly river and stream water for their animals (97%); in Chak and Dai-Mirdad irrigation wells and springs are the sources of water for animals.

Table 47. Drinking Water Sources

	Chak		Dai Mirdad		Kamdish	
	Average no. households sharing	Average distance (m)	Average no. households sharing	Average distance (m)	Average no. households sharing	Average distance (m)
River/stream	30	125	22.9	351.8	123.3	49.8
Canal/kareeze	8.3	89	28.7	307.7	-	-
Covered well	13.8	33.1	30	0	-	-
Uncovered well	5.4	17.7	7.8	67.3	-	-
Spring	-	-	32.3	275	71.8	135.7

6.4. Sanitation

The majority of the population, 76% in Chak, 81% in Dai-Mirdad and 68% in Kamdish have access to latrine. In Chak and Dai-Mirdad, human excreta is collected in a pit and mixed with dung to fertilise fields. Most people are not aware of the sanitation need as no health education has been given on this subject. Nearly all the households in Kamdish have access to latrines. A closer examination suggests that the reason behind this is to provide convenience to women rather than health awareness. The latrines in public places, especially mosques, are drained to rivers from which water is fetched for drinking and cooking. Similar drainage systems are seen in some households. There is a belief that human excreta could be washed away and the water will remain clean and, therefore, no health risk to people.

In all the case-districts, people throw waste, such as plastic and cans, anywhere outside the house. Used water from the bathroom is also poured anywhere outside the house and only a small proportion of the sample households have separate soaking pits (Table 48)

Table 48. Sanitation Attitude (Percentage)

	Chak		Dai Mirdad		Kamdish	
	Waste disposal	Water disposal	Waste disposal	Water disposal	Waste disposal	Water disposal
Anywhere outside	88	65	81	69	79	71
Field	5	5	0	11	5	5
River	0	0	10	9	10	10
Soaking pit	0	28	0	11	0	14
Kitchen garden	0	2	0	0	0	0
Burning	2	0	3	0	3	0
Specified place	5	0	6	0	3	0

6.5. Poppy Cultivation and Opium Addiction

In all districts surveyed no poppy is cultivated. In addition no opium addicts were reported and households seem to have a strong aversion against opium.

PART VII. COMMON PROPERTY RESOURCES

7.1. Management of Common Grazing Areas

Whereas cultivated land is operated under owner and sharecrop system, almost all of the grazing land is managed under communal system of land tenure in all the three districts. Although the specific rules of customary tenure system vary between localities, the general characteristic of the system is that grazing land is collectively owned by one community and that each member of the community has unlimited (i.e. socially sanctioned) use-right free of charge. In all the districts, grazing rules are not defined and grazing rotations are not practised. Individuals decide the number of animals to graze in a particular location and the timing of grazing. In general, communities have one or two shepherds – one for the mature animals and one for the immature ones – who are paid by the households according to the number of animals. One shepherd can look after up to 250 animals, and it is the shepherd who decides where to graze the animals. Besides grazing, the communal grazing areas are source of fuel. In Chak and Dai-Mirdad in particular, the amount and quality of grass is degrading fast and households spend a lot of time in collecting bushes for cooking and heating.

Communal grazing land tenure system has a dual character: on the one hand, the system has safeguard some food security (through animals) by giving each household of the community entitlement to pasture, while on the other it allows overstocking leading to grazing pressure and erosion. The problem of overgrazing can be accelerated by the recovery strategy of individual households. Having lost their animals during the conflict years, farmers are rebuilding their herd. An additional incentive to stock includes rising demand for livestock, both within the country and in Pakistan, coupled with slackening of traditional institutions to manage common grazing pastures. There are local institutions regulating access to grazing pastures. However, these regulations are not formalised and are of less a structural nature. The importance of identifying institutional rules and determining the extent to which political, economic and war have disrupted their significance is important for the development of grazing land management policy. Observation of grazing patterns and discussions with local people indicate that indigenous tenure systems presently are ineffective in regulating grazing. The change can also be related to the decline in the elders' position in society. This seems to be the case in Chak and Dai-Mirdad in particular where indigenous

institutions are not regulating grazing systems. In Kamdish, local leaders are trying to enforce seasonal grazing zones.

7.2. Communal Forest Resource

Forest property rights are institutional instruments that act as economic incentives for efficient use and sustainable management of resources. In Kamdish, forest resources are owned and managed by individual households as well as by the community. The main types of property rights, compiled during the survey, can be classified into four categories:

(i) ***Transferable rights:*** Individual households were allocated a geographically demarcated timber forest. The actual size of the forest and the timber in it vary among households. The household is entitled to exercise unlimited rights in its use. Such a system seems to ensure that the resource is put to its best possible use without depriving people traditional rights of access. The system also allows the transfer of ownership rights from one generation to another of the same household in the interest of preserving historical rights. This system is in operation in Pitigal village.

(ii) Individual user rights: This is another variation of property right whereby individuals arrived to the village community lately are granted access to any of the resources, including those allocated to individual households. They are entitled to cut trees for fuel and construction, graze animals but not timber for sale – hence the notion of user right. This system of property right is also in use in Pitigal.

(iii) Common rights: Forests are controlled by the community and exploited by individual members of the community (often a village of 200 or 300 households). Here too, trees are not cut for sale, but for household use. This is the type of property right is operation in the sampled villages of Mirdish and Mandagal.

(iv) Open access property rights: This is the case in much of the district where individuals cut timber for trade and home use. According to Madera in Kamdish, such a system of resource exploitation is common in Barmandagal and Kamdish villages (see RRA maps in annex for location of villages). As yet, the authorities have paid little attention to environmental effects of unmanaged timber cutting. Taliban authorities are indifferent to the

depletion of forest resources. It is believed that Taliban collect tax from the timber traders. Besides the provision of timber, non-timber products, fuel and construction materials, diverse fauna and values can be generated from forest resources. Degradation of forests means that such values are lost, most likely, irreversibly. This actually typifies the environment in Chak and Dai-Mirdad; degradation of forests and pastures has deprived the people many of the expected benefit from the environment. Degradation in Kamdish has not reached the stage of Chak and Dai-Mirdad; but measures are need to reinforce the capacity of the environment to be resilient in the face of the stress imposed by timber logging.

VIII. OPPORTUNITIES AND CONSTRAINTS

The earlier reconnaissance survey recommended Wardak and Nuristan provinces for future Afghanaid programme activities. This section validates this recommendation by looking into the opportunities and constraints posed for Afghanaid by each of the three case-districts - Chak and Dai-Mirdad in Wardak, and Kamdish in Nuristan.

8.1. Potential for Work

Agriculture: Agriculture is the key sector for addressing villagers' basic needs and reducing poverty, and Afghanaid has not given it the systematic attention it merits. Raising agriculture output provides food security, increases income and reduces relative poverty, which are central concerns of AAD strategy.

Agriculture in Wardak is far better developed, both in terms of infrastructure and productivity, than in Nuristan. Farmers use land more intensively and market surpluses. In contrast, agriculture in East Nuristan is very much subsistence driven. The wheat and maize seed varieties used are not improved and the actual yield achieved by farmers is lower than the average for Wardak. Again East Nuristan fares badly in the use of modern farm inputs.

Strategies are needed to increase the productivity of this sector. Area expansion is not generally a viable option. Intensification by means of improved inputs, however, is possible. At the moment both demand and supply factors constrain the adoption of better technology. The report has documented this, and the empirical findings on yield (local vs. improved), fertiliser application, seed varieties and rates, etc. clearly demonstrate that the cropping sector needs the diffusion of better technology if it is to increase surplus production for consumption and for the market. The absence of poppy cultivation means that resources can be fully directed to food production.

The survey suggests that property rights and land tenure relations do not have major bearing on incentives, efficiency and equity. In fact, the survey data clearly shows that more than two-third of the sampled households in all the districts own agricultural land. Furthermore, inequity in area farmed is not sufficiently significant to have a detrimental effect on

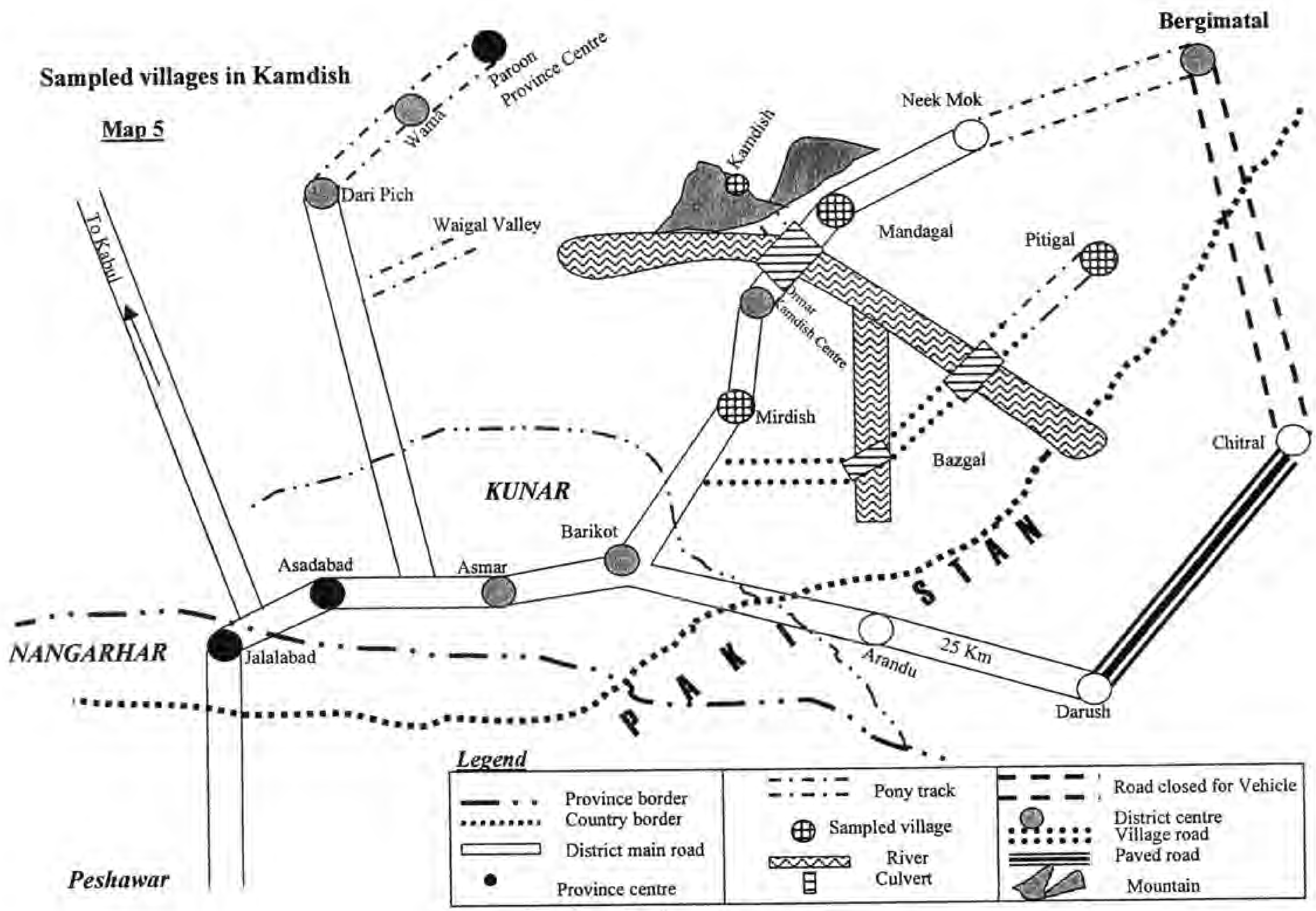
agriculture. What this means is that support to this sector can reach the smallholder and the sharecropper.

In addition to improved agricultural inputs, improvement of the irrigation infrastructure is the key to increasing agricultural productivity. Access to sufficient water should allow double cropping, in addition to increased yields. Most of these irrigation projects would be localised, serving a village population of some 200-300 households. To ensure sustainability, however, it is essential that the technology introduced to increase agricultural production is congruent with existing resources and technical capabilities. The consultants recently engaged by Afghanaid from ITAD (an agriculture and irrigation group associated with Wye College) are to assist with the development of an appropriate agricultural strategy.

The Livestock Sector: This is an important sector in all the districts surveyed. But its development is thwarted by disease, inadequate nutrition and poor animal husbandry practices. The scope for intervention to address livestock production issues is massive. A veterinary clinic is found only in Dai-Mirdad; the other two districts have no such service. By introducing a programme similar to that which we have in Badakhshan, animal health problems can be addressed. With a fall in mortality, herd productivity can increase. This would greatly enhance food security and contribute to the objective of poverty alleviation.

The livestock sector is also constrained by lack of adequate fodder. This is particularly the case in Chak and Dai-Mirdad. At the moment the crop-livestock interaction is not particularly strong. Farmers currently supplement grazing pastures by planting alfalfa and clover, but interventions to increase fodder production are badly needed. This is another area that a specialist should look into and propose appropriate ways and means to increase integration between sectors.

Roads: Road construction is expected to be a major sectoral intervention in all districts. Deficient physical infrastructure makes the exchange of surpluses difficult and expensive, as reiterated by farmers and empirically substantiated in the body of this report. In some of the sampled villages, particularly in Kamdish, there are not even grocery stores. This means that the Engineering Programme (EP) may also have to consider repairing secondary roads. Secondary roads can provide improved access to markets and services, increase local economic activity. Such roads can also greatly help farmers to take their surpluses to nearest


Sampled villages in Kamdish
Map 5
Paroon
Province Centre
Wama
Dari Pich
Waigal Valley
To Kabul
Kamdish
Neek Mok
Bergimatal
Mandagal
Pitigal
Mirdish
Bazgal
Chitral
KUNAR
Barikot
Asadabad
Asmar
NANGARHAR
Jalalabad
Arandu
25 Km
Darush
PAKISTAN
Peshawar
Legend
Province border
Country border
District main road
Province centre
Pony track
Sampled village
River
Culvert
Road closed for Vehicle
District centre
Village road
Paved road
Mountain

markets and earn better prices rather than sale them locally to visiting traders, often at depressed prices.

While village roads are badly needed, the main roads connecting the districts with the rest of the country also require major rehabilitation. The road to Chak and Dai-Mirdad diverts from the Kabul-Kandahar highway some 28 km from Maidan Shar, at a trading centre called Dashtee Toop (see Map 1). This road is not very bad compared to that from Kunar to East Nuristan. It is open for most of the season, except in the winter. However, rehabilitation work is needed at many locations.

The road to East Nuristan via Barikot also needs extensive rehabilitation work. The recent heavy rain and the accompanying flooding and landslide has destroyed bridges and culverts and washed away many sections of the road around Ormar, Kamdish. The team noted four major bridges and eight culverts that should be constructed along this road. The team witnessed people co-operatively working to open up the road, suggesting that mobilising people for community work may well be feasible. It is possible that some of the infrastructure could be built by the people in the coming months, but to ensure that the road remains open throughout the year requires heavy engineering work which only an engineering organisation such as AAD can deliver. Moreover, expanding the programme westward to Bergimatal would require repairing the currently closed road. In short, there is major infrastructure work for the Engineering Programme.

Institution Building: The team believes local authorities in both provinces will accept VOs as development institutions around which people can be organised to address community development needs. Comparing the two provinces, we think institution building and capacity development would be particularly acceptable to Nuristanis. The CD skills learned in Badakhshan, including the development of village organisations, should be transferable.

Social Infrastructure: People lack access to basic services and health education. High mortality rates among infants and children are accentuated by inadequate health care and poverty. Chak is better endowed with health infrastructure than the other two districts, but it is very poor in all three districts. There are a few NGOs providing health service, but these services are clinically oriented and do not cover much of the population. By introducing basic

health education, similar to that we provide in Badakhshan, a good deal can be achieved. Considered as an investment, health education can effectively improve household wellbeing.

Gender: The Badakhshan experience suggests that health education can be an effective "entry point" to initiate programmes to improve the position of women in society. We have raised this issue with the local authorities in the district centres, community leaders and Taliban representatives in the villages. We have received a mixed response. The issue is sensitive and forcing an agenda may not be productive. In villages like Siya Chagar and Khar in Dai-Mirdad, and Pitigal in Kamdish, there is a desire to enhance the earning capacity of women through viable income-generating micro-enterprises. The critical issue then is what sort of initiatives would be viable. The usual temptation is to go for carpet or kilim making or embroidery. We understand that the demand for these items is low in Pakistan, unless the products are of very high quality. Income generating projects should therefore be well researched before being initiated.

Sustainable Development: The survey has looked into the use of common property resources, mainly grazing land and timber forests. East Nuristan is richly endowed with forests, but people have not been able to convert this wealth into development. Timber resources are cut and depleted without yielding sustainable development. The inefficiency stems in part from market failures. Where there is open access to common resources – whether timber or pasture – it leads to unsustainable exploitation, particularly in cases where indigenous institutions are ineffective in managing the resources. Moreover, the unmanaged exploitation of natural resources creates external diseconomies. The flooding that wiped out some 15 km of the road leading to the district centre is a manifestation of this problem. The French NGO Madera is addressing forest resource management through its forestry programme in East and Central Nuristan. The survey has also showed that in some villages people have developed various types of institutions to rationally exploit the timber resource. We believe that Village Organisations potentially provide an excellent platform to address these problems.

Co-ordination with other NGOs: Poverty has various dimensions: lack of productive resources, subsistence agriculture, resource degradation, isolation, absence of physical and social infrastructure, etc. All these are apparent in the three case-districts, but in varying magnitude. The development problem is foremost a poverty problem and requires a co-

ordinated action. Working in co-operation with like-minded agencies would allow the development of a coherent set of long-term development strategies to tackle poverty. Rather than trying to be all-embracing in scope, AAD can leverage its own areas of strength, and complement these by teaming up with others.

This demands an active and constructive engagement with established agencies operating in the districts. The French NGO Madera, for example, is currently operating in East and Central Nuristan. Co-ordination with Madera could be highly beneficial because, logistics and distance apart, the nature of the problem in the region demands specialised intervention. Preliminary discussions with Madera have tentatively identified such areas of co-operation. Madera would focus on common property resource management, particularly forestry, while AAD would concentrate on CD and infrastructure development.

There are also a few NGOs in Wardak straddling between: relief, rehabilitation and development. By working with some of these agencies to develop a common strategy impact can be maximised. Co-ordination should not be sought simply for administrative and logistic purposes; to be most effective it should transcend this and jointly tackle practical development problems.

Aid Activities and Local Perceptions: It seems that Wardak has more than its fair share of NGOs. Attracted more by its proximity to Kabul than any thing else, several NGOs have opened programmes in the province. Some have already completed their projects and departed; a few are still there. There is much development work in the area that AAD could effectively carry out, so securing a niche should not be difficult. More worryingly, however, is the observation that local authorities in Wardak are increasingly meddling in NGO work. This interference ranges from efforts to influence project selection and implementation to harassing and even physically attacking NGO staff. This contrasts with the situation in East Nuristan where local authorities are eager to attract NGOs to the region. There we have dialogued with elders, ordinary people and community leaders in group meetings, and our assessment is that AAD will have few difficulties operating in the Nuristan region.

Administrative Structure: East Nuristan has no government structure higher than the district level. Asadabad, the capital of Kunar province, oversees political and military developments in the region. By installing local administration and assuming control of

security matters, the Taliban are gradually eroding the power of the local commanders as reported earlier in the reconnaissance survey. There is thus a structure, albeit rudimentary, with which to work. The fact that both the district governor and his commander are Nuristanis, a practice unseen in other parts of the country, means that co-operation should not be difficult. By contrast in Wardak there is currently a power struggle between the district governors (from Kandahar) and the military commanders (local), which could have negative implications for the success of our programme.

Political Interference: In Wardak the provincial authorities are known to be interfering with the activities of NGOs located in Maidan Shar. Some NGOs like CARE are frustrated by this interference. By contrast, the district authorities in Kamdish welcome aid, probably because there are few agencies working there. The reconnaissance team that went up to Bergimatal was also assured of co-operation. This is a healthy attitude and we see no reason to doubt their sincerity. In fact, local authorities in Kamdish do not have as high a profile as their counterparts in Wardak. There are few of them and they are primarily concerned with establishing a firm foothold for themselves rather than meddling with NGO work.

Security: At the moment all three case-districts are stable. There has been no fighting for quite sometime even in the troubled region of West Wardak. The power struggle between Taliban and Wahdat is in a stalemate. Elders expressed fear that if the Taliban launched an attack on the Wahdat it could well have repercussions for the security situation in Dai-Mirdad. Concerned over this danger, the elders strongly oppose a military solution to the conflict in the region. The local commanders are sympathetic to the elders' concern and so far have refused to launch attacks against Wahdat positions. Each side is currently maintaining its position. Occasionally, however, commanders impose movement restriction in a bid to stop supplies from getting to the Wahdat. Since Wardak is accessed through Kabul, political and military developments in and around the capital may also have a knock-on effect on the security in Wardak. Shifting alliances may also cause hostilities in areas that are now peaceful and operationally viable.

The reconnaissance survey reported that security in East Nuristan is good. We affirm this. Taliban control the area stretching from Jalalabad to Barikot. From there up to Kamdish, security is provided by the Kamdish shura. Beyond this the area is no longer under the Alhadees, as reported in the reconnaissance survey; but has been taken over by the Taliban.

There is the occasional incursion by timber barons, such as Zereen from Bajuar Agency, NWFP, into Asmar. As a result, the road around Asmar is sometimes closed for a day or two. We are satisfied, however, that the Taliban are manning the road and security is dependable.

Routes: The reconnaissance survey listed five possible routes to East Nuristan. Two of these are very important for supplies, staff movement and escape: (1) Peshawar > Jalalabad > Asdabad > Barikot > Kamdish > Bergimatal, and (2) Chitral > Darush > Arandu/Barikot > Kamdish > Bergimatal. The first route to the region takes a day and half by car. The road from Jalalabad up to Barikot is gravelled but passable all season.

The second route via Chitral is probably the better of the two. It is the easiest as well as the shortest route. Nearly two third of the road is paved. Information collected from Traders in Barikot suggests that the route is dependable in terms of security. Arandu is a border town near Barikot. Here there are mechanics, truckers, a fuel station, telephone, post office, hospital and shops for basic items.

There are also two routes to Wardak: (1) Kabul > Maidan Shar Chak > Dai-Mirdad, and (2) Ghazni > Chak > Dai-Mirdad. However, there is only one entry and exit route to the districts – that is, off the Kandahar – Kabul highway at a trading centre called Dashtee Toop. This means that in the event of a conflict in the area, evacuation may not be easy. Right now, the route is open, and supplies come from both directions.

8.2. Recommendation

The reconnaissance survey recommended both East Nuristan and Wardak for new programme areas. We believe this recommendation is still basically sound. However, for the reasons we have detailed above, we believe AAD involvement should initially be limited to East Nuristan. The region is politically stable and offers a much better environment for AAD to bring its skills and experience to bear. Community Development and Engineering activities of the type in which we are involved in Badakhshan can be implemented in the region without major adjustment. This means that success can probably be achieved more quickly in East Nuristan than in Wardak. Nuristan also offers a better environment to organise and work with women. Finally, it should be noted that Nuristan is relatively one of the poorest regions in Afghanistan.

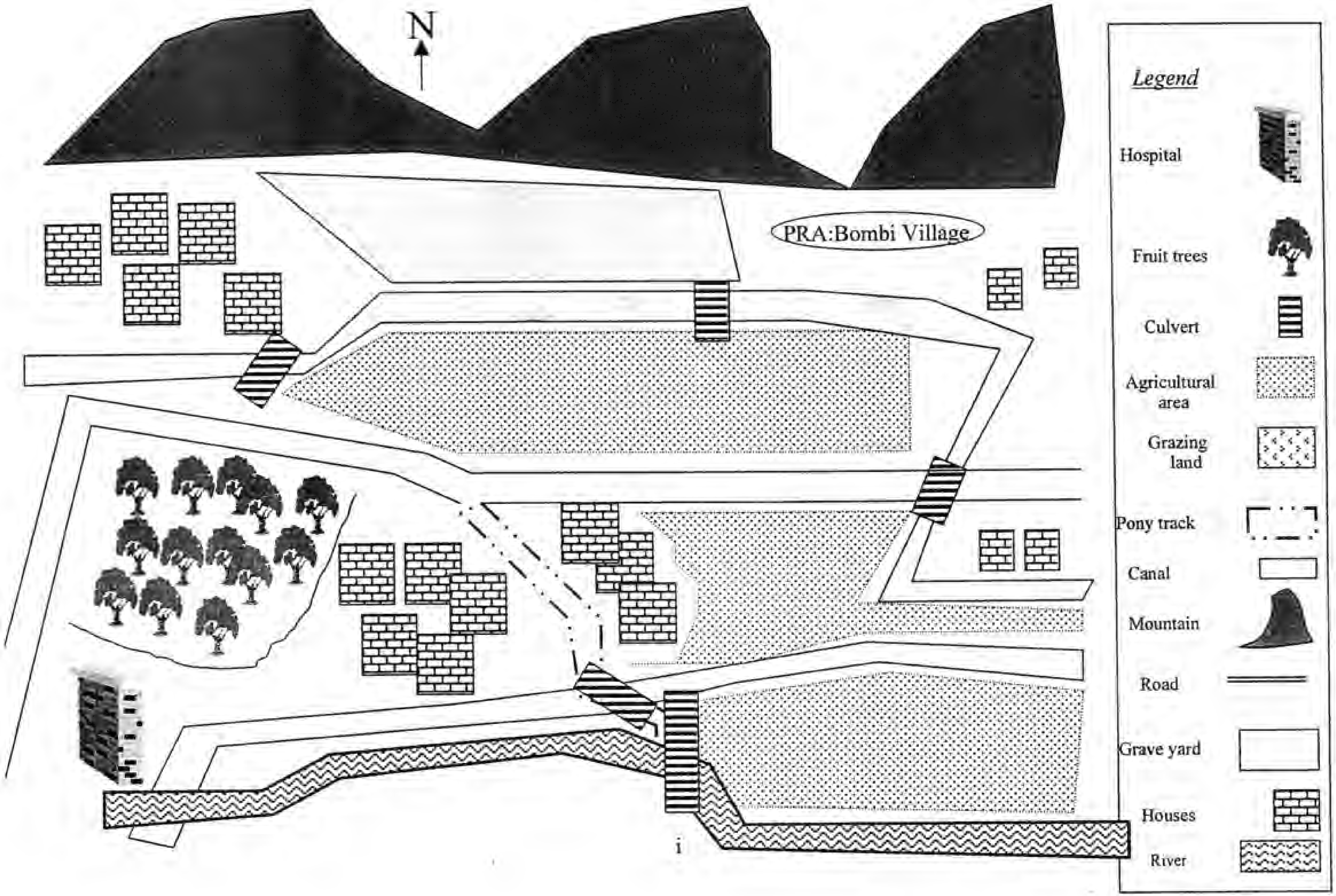
We propose that the provincial office for East Nuristan be located in Barikot (see Map 1). There are several reasons for proposing this. Most significant is that there are no services available in Kamdish and Bergimatal. In fact, Ormar, the Kamdish district centre, is nothing more than a simple village without even a bazaar. In contrast, Barikot is a district town with some shops and simple amenities, and is right on the border of Kamdish district. Arandu, a trading centre in Pakistan, is right across the river from Barikot two kilometres away. There are some 20 small shops supplying basic items, as well as a hospital, telephone service and various government institutions. Staff can access these services and the telephone in particular should make communication with the HO much easier.

Barikot is connected with Chitral via Arandu and Darush - another trading town in Pakistan. The road from Barikot to Darush, 25 km, is dirt but accessible throughout the year; from Darush to Chitral is 65 km and it is paved. As noted above, this provides an alternative route to Jalalabad > Asadabad > Barikot > East Nuristan for staff movement and for the supply of construction materials. Information collected from local traders in Barikot indicates that it is much cheaper to use the Chitral route to move materials. Trucks run to and from Chitral frequently. Permits to transport items are issued in Chitral.

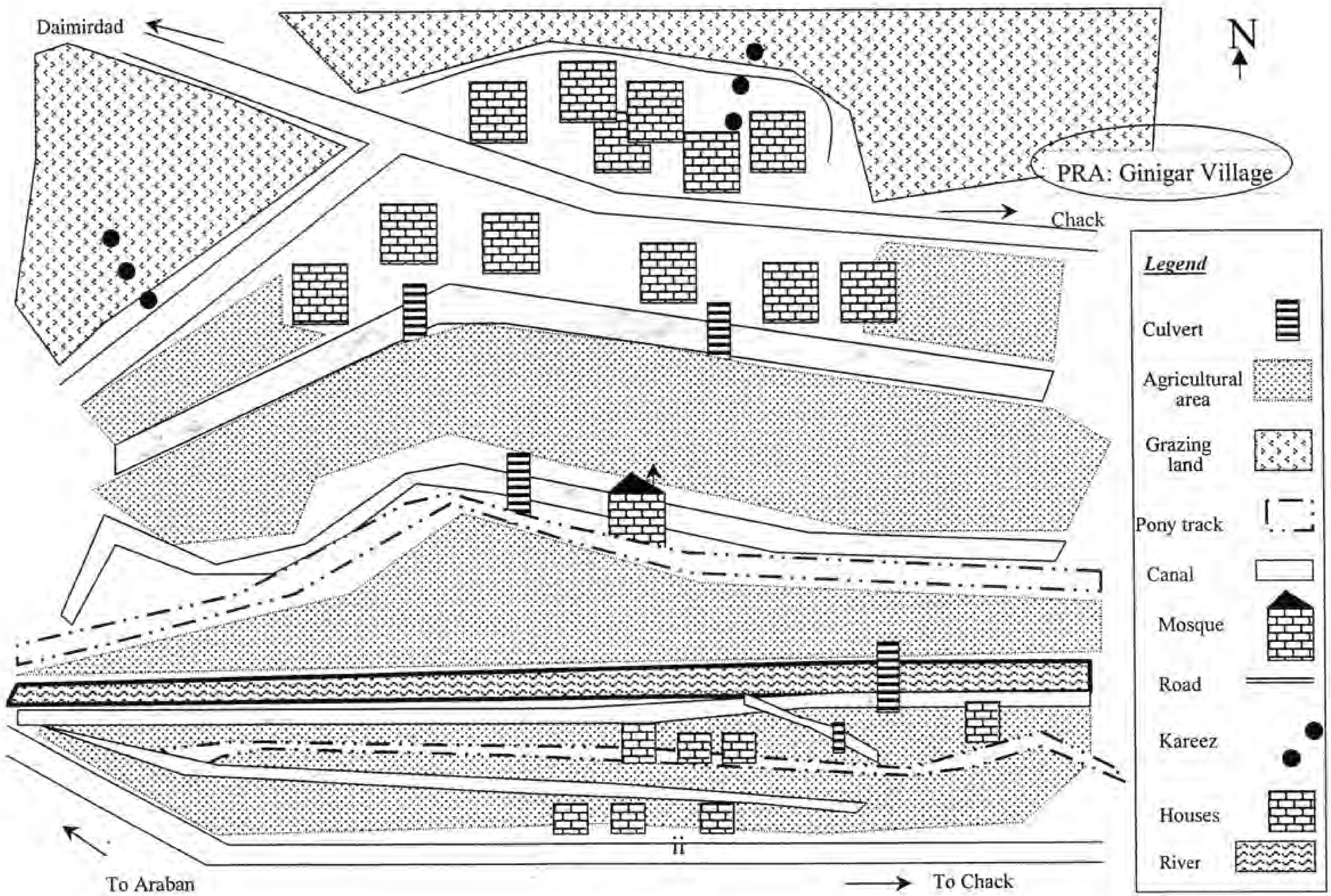
Locating the provincial office in Barikot is also advantageous if we later decide to expand into central Nuristan – Pirch, Waigal valley, Paroon and Wama (see Map2 for location). Barikot offers better access than Kamdish to this region and the programme could be more effectively managed there. Madera is the only agency currently working in Nuristan and has an office there.

The alternative to this would be to begin work in De Chak. In this case the proposed provincial programme office is De Chak rather than Maidan Shar, the provincial city. Several NGOs, including CARE have programme offices in Maidan Shar, but their experience suggests that opportunities to operate freely are greater the farther the office is located from the centre. Moreover, there is a housing shortage in Maidan Shar, and NGOs that have renovated damaged buildings have had them taken over by the authorities. Consequently, Chak appears a much better location for a provincial office than Maidan Shar. This would also permit the programme to expand westward to parts of Dai-Mirdad. However, the current security situation beyond this to the west is unpredictable.

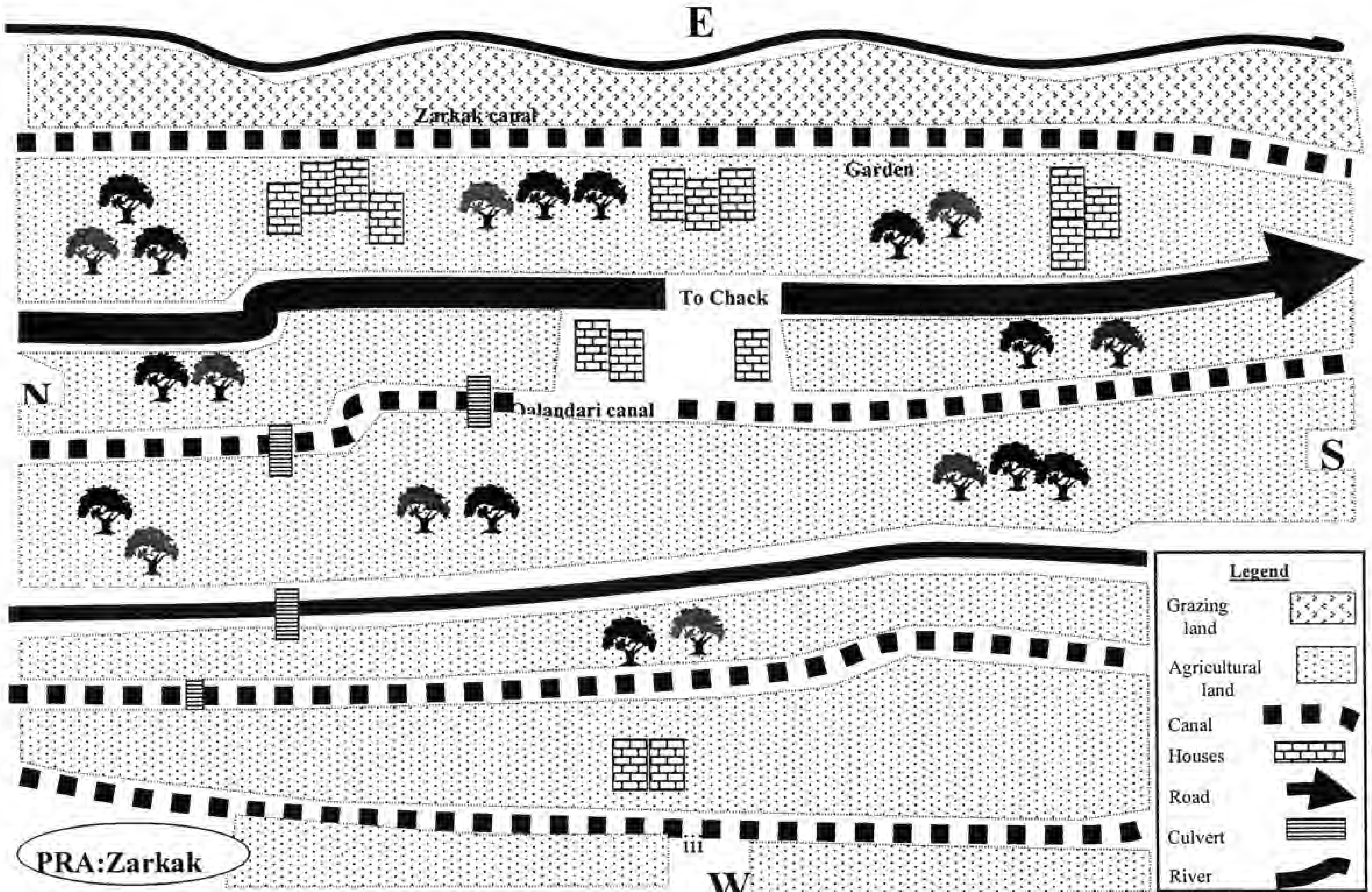
ANNEX I SAMPLED VILLAGE MAPS



N
PRA:Bombi Village
Legend
Hospital
Fruit trees
Culvert
Agricultural area
Grazing land
Pony track
Canal
Mountain
Road
Grave yard
Houses
River



Daimirdad
N
PRA: Ginigar Village
Chack
Legend
Culvert
Agricultural area
Grazing land
Pony track
Canal
Mosque
Road
Kareez
Houses
River
To Araban
To Chack


E
Zarkak canal
Garden
To Chack
N
Qalandari canal
S
W
PRA:Zarkak
Legend
Grazing land
Agricultural land
Canal
Houses
Road
Culvert
River

such subjects as infrastructure, agriculture, services and natural resource management. Applying the methodology of PRA, participants were also asked to draw village maps, and using this as a starting point, issues pertaining to grazing and forest land use, and community infrastructure were studied. The maps were re-drawn in computers using "free-hand" and enclosed in the annex. Questions were not designed in advance for RRA and PRA; broad areas of enquiry were defined by the methodology but specific questions were conceived and asked on the spot using the maps as a guide. The size of the group participants meeting ranged from 30 to 100. At times, the well-informed persons were dominating the dialogue. However, participants were let free to contradict and correct each other and eventually reach a consensus. Because of this the length of the discussions ranged from 2 to 3 hours.

In addition, direct observation was made to validate some of the information collected. The team has kept an open eye for patterns in resource exploitation and farmer behaviour while walking and driving through the villages.

While household heads were purposively selected to represent the variability within the villages, "key informants" were interviewed for information on the broader system beyond their household. The key informants included mullahs, teachers and ordinary farmers and staff working for NGOs but sufficiently familiar with the areas.

2.3. Questionnaires

Two types of questionnaire were designed: formal and informal. Formal refers to a standard questionnaire administered to households. The informal questionnaire was a "checklist" prepared from brainstorming prior to the trip and implemented at the community level. Both sets of questionnaires generated substantial amount of qualitative and quantitative information. The questionnaires were not tested, but some changes and corrections were made in the field. The questionnaires were filled in two groups and, on the average, one questionnaire has taken 1.45 hour to complete.

Afghanaid



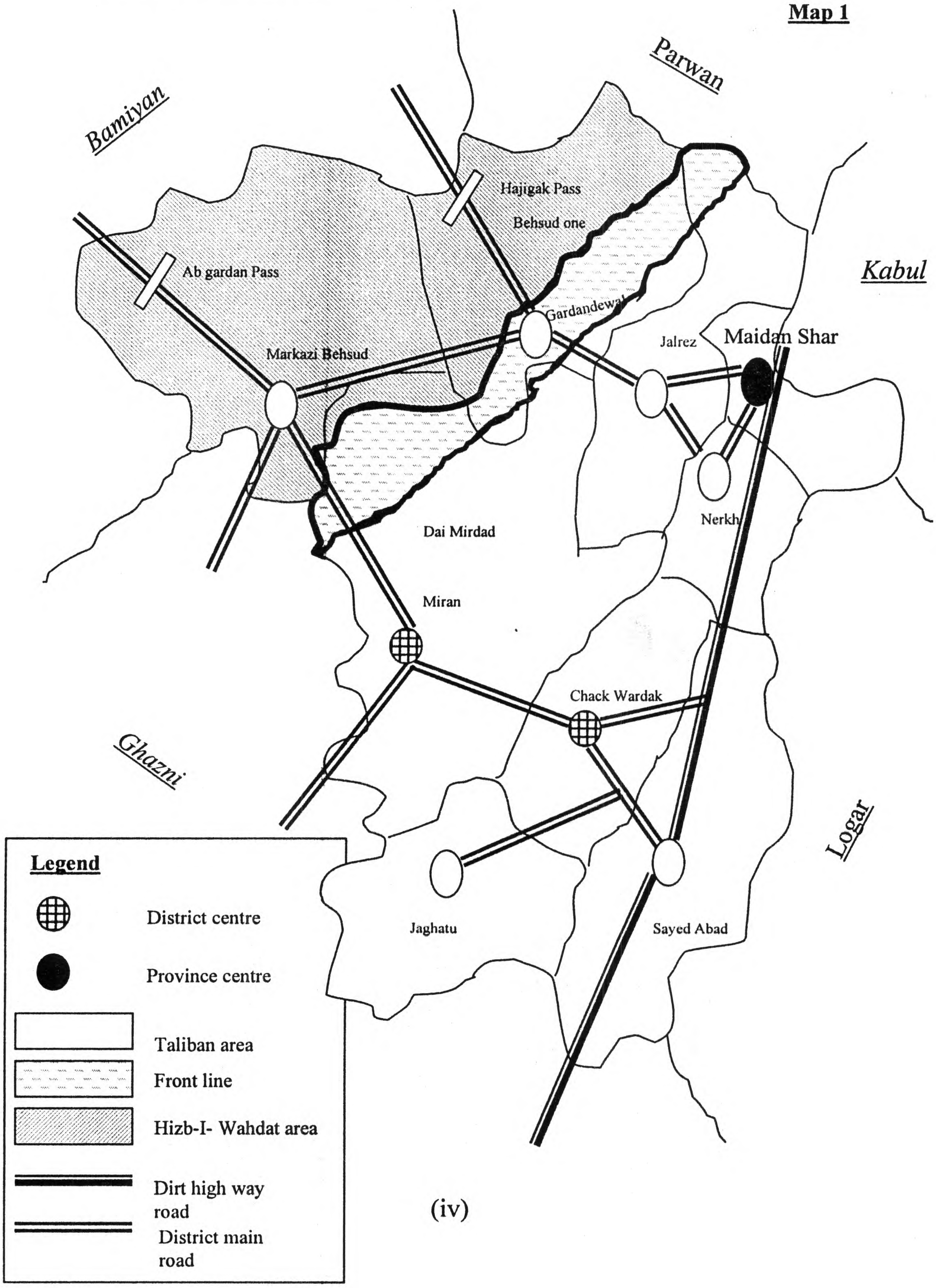
A BASELINE SURVEY REPORT
Chak, Dai-Mirdad and Kamdish Districts

Monitoring and Research Unit
June, 1998

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Map of Wardak Province

Map 1



Map of Nuristan Province

Map 2

